Ascent Solar Technologies, Inc.
Form 424B1
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Registration No. 333-149740

Prospectus

3,800,000 shares

Ascent Solar Technologies, Inc.

Common stock

We are offering 3,800,000 shares of our common stock. Our common stock is traded on the Nasdaq Global Market under the symbol "ASTI."

	Per Share	Total
Public offering price	$ 14.00	$ 53,200,000
Underwriting discount	$ 0.84	$ 3,192,000
Proceeds to us, before expenses	$ 13.16	$ 50,008,000

We have granted the underwriters a 30-day option to purchase up to 570,000 additional shares from us to cover over-allotments, if any.

The underwriters expect to deliver the shares against payment in New York, New York on or about May 21, 2008.

Investing in our common stock involves risks. See "Risk Factors" beginning on page 8.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy of this prospectus. Any representation to the contrary is a criminal offense.

JPMorgan

Cowen and Company **Jefferies & Company**

Merriman Curhan Ford & Co.

The date of this prospectus is May 15, 2008

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ABOUT THIS PROSPECTUS

You should rely only on information contained in, or incorporated by reference into, this prospectus, any free writing prospectus and any prospectus supplement or amendment. We have not, and the underwriters have not, authorized anyone to provide you with information different from that contained in this prospectus or incorporated by reference into this prospectus. We are not making offers to sell the securities in any jurisdiction in which such an offer or solicitation is not authorized or in which the person making such offer or solicitation is not qualified to do so, or to anyone to whom it is unlawful to make such offer or solicitation. The information in, or incorporated by reference into, this prospectus and any prospectus supplement or amendment prepared by us may be accurate only as of their respective dates.

Each trademark, service mark or trade name of any other company appearing in this prospectus belongs to its owner. Use or display by us of trademarks, service marks or trade names owned by others is not intended to and does not imply a relationship between us and, or endorsement or sponsorship by, the owners of the trademarks, service marks or trade names.

INDUSTRY AND MARKET DATA

This prospectus includes industry and market data that we obtained from industry publications, third-party studies and surveys and internal company surveys. These sources include the Energy Information Administration, the International Energy Agency, Solarbuzz, LLC, Navigant Consulting, Inc., NanoMarkets, LLC and the National Renewable Energy Laboratory. Industry publications and surveys generally state that the information contained therein has been obtained from sources believed to be reliable. Unless otherwise noted, statements as to our market position relative to our competitors are approximate and based on the above-mentioned third-party data and internal analysis and estimates as of the latest available date. Although we believe the industry and market data and statements as to market position to be reliable as of the date of this prospectus, this information could prove inaccurate. Industry and market data could be wrong because of the method by which sources obtained their data and because information cannot always be verified with complete certainty due to the limits on the availability and reliability of raw data, the voluntary nature of the data gathering process and other limitations and uncertainties. In addition, we do not know all the assumptions regarding general economic conditions or growth that were used in preparing the forecasts from sources cited herein.

PROSPECTUS SUMMARY

This summary highlights information contained in this prospectus. While we believe that this summary highlights some of the most important information about Ascent Solar Technologies, Inc. and this offering, you should read this entire prospectus and the documents incorporated by reference carefully, including "Risk Factors" before deciding to invest in our common stock. References to "we," "us," "our," "Ascent," "Ascent Solar" or the "Company" in this prospectus mean Ascent Solar Technologies, Inc.

Business Overview

We are a development stage company formed in October 2005 to commercialize flexible photovoltaic (PV) modules using proprietary technology. Our technology was initially developed at ITN Energy Systems, Inc. (ITN) by our founder and core scientific team beginning in 1994 and subsequently assigned and licensed to us. Our proprietary manufacturing process deposits multiple layers of materials, including a thin film of highly efficient copper-indium-gallium-diselenide (CIGS) semiconductor material, on a flexible, lightweight, plastic substrate and then laser patterns the layers to create interconnected PV cells, or PV modules, in a process known as monolithic integration. We believe that our technology and manufacturing process provides us with significant advantages over both the crystalline silicon (c-Si) based PV manufacturers that currently dominate the PV market, as well as other thin-film PV manufacturers that use rigid and/or heavier substrate materials such as glass, stainless steel or other metals.

Because our thin-film PV modules require less than 1% of the semiconductor material to achieve the same power output as a c-Si-based PV device, we do not face the supply constraints and raw material costs that affect silicon-based PV manufacturers. Also, relative to our thin-film competitors, our use of CIGS on a flexible, lightweight, plastic substrate not only allows for integration of our PV modules into a variety of building materials and electronic products, but also should enable a reduction in the cost-per-watt ratios, and increases in the power-to-weight and power-to-area ratios, that our PV modules are able to achieve. These metrics will be critical as we position ourselves to compete in both the high value-added, integrated PV markets and the commodity solar panel market. We also believe that, when employed on a sufficiently large commercial scale, our large-format, roll-to-roll manufacturing process and proprietary monolithic integration techniques will allow us to achieve a per watt manufacturing cost lower than that of our competitors and ultimately to attain grid parity *i.e.,* the point at which the cost of our PV-generated power is equal to that of retail power distributed from the electric utility grid in certain geographic markets within five years. We currently are on schedule to begin limited commercial production of our PV modules in the second quarter of 2008 and plan to expand our rated production capacity to approximately 30 MW by the end of 2009. Thereafter, we intend to expand our rated production capacity incrementally as we install and qualify additional production tools, achieving approximately 60 MW of aggregate rated production capacity by the end of 2010 and approximately 110 MW of aggregate rated production capacity by the end of 2011. We believe that we are the only company focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate.

Our target markets include the building integrated PV (BIPV) market, in which solar modules are incorporated directly into building and construction materials, the electronic integrated PV (EIPV) market, in which solar modules are incorporated directly into portable electronic devices, and the commodity solar panel market. In the BIPV and EIPV markets, we intend to be the supplier of choice by offering high-performance, flexible PV modules that can be integrated directly into products such as roofing shingles, siding and facades, metal and composite panels and roofing membranes in the BIPV market, and electronic packages, casings, battery packs and portable power systems in the EIPV market. In the commodity solar panel market, we intend to leverage our low-cost manufacturing process to compete primarily on the basis of price.

Our marketing and distribution strategy is based on the formation of strategic relationships with key partners, including original equipment manufacturers (OEMs), system integrators and distributors, who deal directly with end-users in our target markets. In 2007, we entered into a strategic relationship with Norsk Hydro Produksjon AS (together with its affiliates, Norsk Hydro). Norsk Hydro is a major global supplier of aluminum-based building systems, and pursuant to our relationship, we intend to integrate our flexible PV modules into building products produced and sold by Norsk Hydro, including sun-shading systems, wall systems and facades. Also, in February 2008, we announced the mutual pursuit of a series of strategic relationships with ITOCHU Corporation (ITOCHU) pursuant to which ITOCHU would, among other things, manage our OEM relationships in Japan and support distribution of our PV modules into markets in which ITOCHU is pursuing solar installations. In March and April 2008, we entered into cooperative development agreements with certain North American and European companies, including ICP Solar Technologies, Inc. of Canada (ICP) and Icopal SAS of France (Icopal), pursuant to which these companies are expected to develop, test and integrate our PV modules into their BIPV or EIPV products. We currently are in discussions with a number of other market participants to establish similar non-exclusive relationships in a variety of geographic markets worldwide.

While focused on speed to market, we believe that quality and consistency of product will be paramount to our success in the marketplace. Consequently, our path to commercialization is defined by a highly disciplined, staged progression based upon the achievement of key milestones and supported by over thirteen years of concerted research and development activity by our scientists. In keeping with this philosophy, we completed construction of a 1.5 MW production line in December 2007 after having consistently achieved PV cell conversion efficiencies of approximately 10% to 12%, and PV module conversion efficiencies of approximately 6% to 8%, and as high as 9.6%, in a pre-production prototyping and test facility that we have operated since the fourth quarter of 2006. Conversion efficiency is the percentage of energy from absorbed light that a device is able to convert into electrical energy. Over time and with further refinement of our existing processes, we believe that our PV modules should be able to achieve efficiencies of 10% to 12%, significantly greater than the 6% conversion efficiency threshold that we believe is necessary for our products to be commercially acceptable in the current marketplace. The 1.5 MW production line incorporates into an integrated process each of the discrete manufacturing steps that have been previously tested in our pre-production prototyping and test facility. In March 2008, we achieved initial operating capability (IOC) of our 1.5 MW production line as an end-to-end integrated process. Early IOC production trials resulted in average thin-film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of up to approximately 7.1%. We intend to commence limited commercial production on our 1.5 MW production line during the second quarter of 2008 with an emphasis on module testing and further optimization of production efficiencies and yield, and we expect to obtain independent certifications of our PV modules from certain government or regulatory organizations, such as Underwriters Laboratory, Inc. (UL), International Electrotechnical Commission (IEC) and Technischer Überwachungs-Verein Rheinland (TÜV), by the second quarter of 2009 after we have demonstrated desired production yields, module efficiencies and other targets on a repeatable basis. We expect to manufacture a total of approximately 2 MW of product on this production line between mid-2008 and the end of 2009 while concurrently working with Norsk Hydro, ITOCHU, ICP, Icopal and other strategic partners to qualify products for sale to end-users. Our manufacturing expansion plan entails the design, installation, qualification, testing and operation of additional production tools to increase our rated production capacity. We plan to expand our rated production capacity to approximately 30 MW by the end of 2009, and thereafter we intend to expand our rated production capacity incrementally as we install and qualify additional production tools, achieving approximately 60 MW of aggregate rated production capacity by the end of 2010 and approximately 110 MW of aggregate rated production capacity by the end of 2011. However, the actual production levels that we are able to

realize at any point during our planned expansion will depend on a variety factors, including our ability to optimize our production process to achieve targeted production yields and module efficiencies.

Market Opportunity

According to the Energy Information Administration (EIA), a statistical agency of the U.S. Department of Energy, worldwide electricity production is expected to increase from 16.6 terawatt-hours (TWh) in 2004 to 30.7 TWh in 2030, with the vast majority produced from fossil fuel sources such as coal, oil and natural gas. This growth along with the increasing cost of fossil fuels and environmental and security concerns have led to sustained efforts to increase the use of renewable resources to generate electricity. To encourage use of renewable energy, national and regional governments around the world have implemented a variety of incentive programs. These programs include capital and production tax credits, tariff structures, and mandates requiring that a minimum percentage of total power be produced using renewable resources. The technologies promoted by these incentives include, among others, solar, wind, geothermal and tidal power.

According to industry reports, annual shipments of PV modules increased from approximately 500 MW in 2002 to approximately 1,985 MW in 2006, representing an average compound annual growth rate of more than 40%, and it is estimated that approximately 2,580 MW of new capacity were shipped in 2007. Industry reports also suggest that the rapid growth of the sector will continue and indicate that shipments will grow to approximately 22,805 MW in 2015. Based on shipment and average module sales price forecasts contained in industry reports, the market opportunity for manufacturers of PV modules during the 2008 to 2011 period is estimated to be roughly $75 billion.

To date, the PV market has been dominated by modules produced using c-Si technology, which accounts for over 90% of the current worldwide installed capacity of PV cells. However, thin-film PV technologies are gaining market share as they generally have certain advantages over c-Si-based PV modules including reduced amounts of semiconductor material, the absence of polysilicon, and the ability to employ lower-cost manufacturing processes. According to industry reports, the production of thin-film PV modules is projected to grow to approximately 6,045 MW in 2015 from an estimated 476 MW in 2007. We believe that our flexible, lightweight PV modules are particularly well suited for integration into building materials. Industry experts estimate that the market for thin-film PV applications in commercial, industrial and residential buildings was approximately $600 million in 2007, and will grow to over $1.8 billion in 2010.

Thin-Film Technologies

Thin-film PV technology refers to the creation of PV modules by affixing a thin layer of semiconductor material to a substrate. Thin-film technologies differ from one another based on the semiconductor material used (*i.e.,* amorphous silicon or a-Si, cadmium telluride or CdTe, or CIGS) and the kind of substrate to which it is affixed (*i.e.,* glass, various metals or plastic). We believe that by using CIGS affixed to a flexible, lightweight, plastic substrate, we can offer a superior product to customers in our target markets. Unlike thin-film PV modules using other semiconductor material, CIGS-based PV modules are characterized by a combination of high conversion efficiencies, an ability to incorporate a flexible substrate and low susceptibility to degradation upon prolonged exposure to ultraviolet light. Our use of a flexible plastic substrate allows us to pursue a variety of product integration opportunities that are not technically or economically feasible for our competitors who use rigid substrates, while also enabling us to reduce our manufacturing costs using proprietary monolithic integration techniques that we believe are not feasible for manufacturers who use flexible metal substrates. We believe that we are the only company currently focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate.

Competitive Strengths

We believe we possess a number of competitive strengths that provide us with an advantage over our competitors.

We are an early mover in CIGS technology with a proprietary, flexible, lightweight PV product that positions us to penetrate a wide range of attractive high value-added markets. By applying CIGS to a flexible, plastic substrate, we have developed a PV module that is efficient, lightweight and malleable, providing unique opportunities for integration into building material products (such as roofing shingles, siding and facades, metal and composite panels and roofing membranes) and electronic components (such as electronic packages, casings, battery packs and portable power systems). Relative to our competitors, we believe that our early mover advantage in CIGS technology has placed us on an accelerated path to commercialization with a superior product offering.

We have the ability to manufacture PV modules for different markets and for customized applications without altering our production processes. Our ability to produce PV modules in customized shapes and sizes, or in a variety of shapes and sizes simultaneously, without interrupting our production flow provides us with flexibility in determining target markets and product applications, and allows us to respond quickly to changing market conditions. Many of our competitors are limited by their technology and/or their manufacturing processes to a more restricted set of product opportunities.

Our integrated, roll-to-roll manufacturing process and proprietary monolithic integration techniques provide us a cost advantage over our competitors. Historically, manufacturers have formed PV modules by manufacturing individual solar cells and then interconnecting them. Our large-format, roll-to-roll manufacturing process allows for integrated production. In addition, our proprietary monolithic integration techniques allow us to utilize laser patterning to create interconnects, thereby creating PV modules at the same time we create PV cells. In so doing, we are able to eliminate an entire back-end processing step, saving time as well as labor and manufacturing costs relative to our competitors.

Our strategic relationship with Norsk Hydro provides us with direct access to a large customer base in the global BIPV market. Norsk Hydro is a major global supplier of aluminum-based building systems, and our relationship provides us with a strong, established development and marketing partner for accessing the BIPV market in an accelerated manner. Together with Norsk Hydro, we are in the process of developing a product line that would incorporate our PV modules into various Norsk Hydro products such as sun-shading systems, wall systems and facades.

Our proven research and development capabilities position us to continue the development of next-generation PV modules and technologies. Our ability to produce CIGS-based PV modules on a flexible plastic substrate is the result of a concerted research and development effort that began more than thirteen years ago. We continue to pursue research and development in an effort to drive efficiency improvements in our current PV modules and to work toward next-generation technologies and additional applications.

Strategies

Our goal is to become the industry leader in the high value-added BIPV and EIPV markets, where we intend to be the supplier of choice by offering high-performance, flexible PV modules that can be integrated directly into building and construction materials and portable electronic devices. We also intend to compete as a low-cost, high-quality provider in the commodity solar panel market. We plan to employ a multi-pronged strategy focused on three primary functions: manufacturing, marketing and distribution, and research and development.

Manufacturing Strategies

Maintain a methodical, disciplined approach to commercialization in order to minimize shorter term risks while maximizing longer term opportunities;

Test and qualify our 1.5 MW production line in anticipation of commencing limited commercial production in the second quarter of 2008, when we intend to begin supplying development and test modules to customers in support of joint product development efforts and internal testing activities;

Obtain independent certifications of our PV modules from certain government or regulatory organizations such as UL, IEC and TÜV by the second quarter of 2009 after we have demonstrated desired production yields, module efficiencies and other targets on a repeatable basis;

Complete engineering, installation and qualification of production tools for approximately 30 MW of rated capacity by the end of 2009, an additional approximately 30 MW of rated capacity by the end of 2010 and an additional approximately 50 MW of rated capacity by the end of 2011, for a total of 110 MW of rated capacity;

Reduce per watt manufacturing costs through continued improvements in manufacturing efficiencies, yield, and throughput; and

Identify and evaluate suitable locations for expanded production capacity, domestically and abroad, that best serve our target markets and customers.

Marketing and Distribution Strategies

Establish strategic relationships with key partners, including OEMs, system integrators and distributors, providing access to end-users in attractive global markets;

Continue to develop diverse product applications in the BIPV and EIPV markets; and

Develop "commodity modules" to compete on a low-cost basis in the commodity solar panel market.

Research and Development Strategies

Continue to develop technological enhancements, such as multi-junction designs, to enhance performance of our PV modules;

Continue efforts to identify next-generation technologies to serve existing and potential new markets;

Continue to develop improved or alternative manufacturing processes; and

Seek appropriate protections for the intellectual property we develop.

Corporate Information

We are incorporated under the laws of Delaware, our principal business office is located at 8120 Shaffer Parkway, Littleton, Colorado, and our telephone number is (303) 285-9885. Our website address is www.ascentsolar.com. Information contained on our website or any other website does not constitute part of this prospectus.

This Offering

Common stock offered by us in this offering	3,800,000 shares of common stock.
Common stock outstanding after this offering	17,849,352 shares of common stock.
Use of proceeds	For the design, purchase, installation, qualification and testing of production tools for approximately 30 MW of rated production capacity, and for general corporate purposes.
Listing	Our common stock is listed on the Nasdaq Global Market under the symbol "ASTI."
Risk factors	Investing in our common stock involves a high degree of risk. You should carefully consider the information set forth in the "Risk Factors" section.

We have granted the underwriters an option exercisable up to 30 days after the date of this prospectus to purchase up to 570,000 additional shares of our common stock, on the same terms and conditions as the shares offered hereby, to cover over-allotments, if any.

As of March 31, 2008, we had 14,049,352 shares of common stock issued and outstanding. Unless the context indicates otherwise, all share and per-share common stock information in this prospectus assumes 14,049,352 shares of common stock outstanding before this offering and:

- assumes a public offering price of $14.00 per share;
- assumes no exercise of the underwriters' over-allotment option;
- assumes no further exercise by Norsk Hydro of an option pursuant to which Norsk Hydro is entitled to purchase additional shares of our common stock and Class B warrants that would enable it to maintain its ownership of up to 35% of our outstanding common stock and warrants;
- assumes no exercise of 10,504,583 Class B warrants outstanding as of March 31, 2008;
- assumes no exercise of 112,500 outstanding warrants issued to the representative of the underwriters of our initial public offering, or of the 112,500 Class A warrants and 225,000 Class B warrants underlying those outstanding warrants; and
- excludes 582,083 shares reserved for issuance upon exercise of outstanding options as of March 31, 2008 under our 2005 Stock Option Plan, as amended.

Summary Historical Financial Data

The following table provides a summary of our historical financial information for the periods and at the dates indicated. The summary historical financial information for the fiscal years ended December 31, 2006 and December 31, 2007 and as of December 31, 2006 and December 31, 2007 have been derived from our audited financial statements included elsewhere in this prospectus. The summary historical financial data for the three months ended March 31, 2007 and March 31, 2008 and as of March 31, 2007 and March 31, 2008 have been derived from our unaudited financial statements included elsewhere in this prospectus.

The information presented below should be read in conjunction with "Use of Proceeds," "Capitalization," "Selected Historical Financial Data," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the financial statements and related notes thereto included elsewhere in this prospectus. The historical results are not necessarily indicative of the results to be expected in future periods.

	Year Ended		Three Months Ended	
	Dec 31, 2006	Dec 31, 2007	Mar 31, 2007	Mar 31, 2008
	(dollars in thousands, except per share data)			
Statements of Operations Data:				
Research & Development Revenues	$	$ 1,003	$ 235	$ 305
Research & Development Expenses	(691)	(3,975)	(760)	(1,685)
General and Administrative Expenses	(2,684)	(4,954)	(994)	(1,331)
Loss from Operations	(3,375)	(7,926)	(1,519)	(2,711)
Interest Income (Expense), Net	(806)	1,423	146	312
Net Loss	$ (4,181)	$ (6,503)	$ (1,373)	$ (2,399)
Net Loss Per Share (Basic and Diluted)	$ (1.45)	$ (0.70)	$ (0.24)	$ (0.20)
Weighted Average Common Shares Outstanding (Basic and Diluted)	2,881,639	9,237,252	5,694,561	11,807,789
Other Financial Data:				
Net Cash Used in Operating Activities	$ 2,757	$ 4,294	$ 990	$ 1,608
Capital Expenditures	467	11,013	1,399	6,284

	Actual		As Adjusted[1]
	Dec 31, 2007	Mar 31, 2008	Mar 31, 2008
	(in thousands)		
Balance Sheet Data:			
Cash, cash equivalents and short term investments	$ 37,701	$ 63,747	$ 113,055
Property and equipment, net	1,651	14,505	14,505
Deposits on manufacturing equipment	9,720	2,986	2,986
Total assets	49,817	82,301	131,609
Current and long term liabilities	1,195	5,710	5,710
Total stockholders' equity	48,622	76,590	125,898

(1) As adjusted balance sheet data as of March 31, 2008 are determined by giving effect to the sale of 3,800,000 shares of our common stock by us in this offering at a public offering price of $14.00 per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

RISK FACTORS

An investment in our common stock involves a high degree of risk and many uncertainties. You should carefully consider the specific factors listed below, together with the cautionary statement that follows this section and the other information included, or incorporated by reference into, this prospectus, before purchasing our common stock. If one or more of the possibilities described as risks below actually occurs, our operating results and financial condition would likely suffer and the trading price of our common stock could fall, causing you to lose some or all of your investment in the securities we are offering.

Risks Relating to Our Business

We have a limited history of operations, have not generated any revenue from operations and have not commenced commercial production of our PV modules.

We have a limited operating history and have not generated any revenue from operations. We have not yet obtained independent certifications of our PV modules from certain government or regulatory organizations such as UL, IEC and TÜV. Our plans call for expansion of production capacity, but we do not expect to achieve another approximately 30 MW of rated capacity until the end of 2009. Our ability to achieve our business, commercialization and expansion objectives will depend on a number of factors, including whether:

- we can demonstrate desired production yields, module efficiencies and other targets on a repeatable basis within our planned time frame;
- our products are successfully and timely certified for use in our target markets;
- we successfully qualify production tools to achieve the efficiencies and yields necessary to reach our cost targets as we expand our rated capacity;
- the cost models on which we intend to rely for the manufacture of our PV modules prove accurate;
- we raise sufficient capital to expand our total rated capacity to approximately 110 MW, and whether such capacity will enable us to reach the economies of scale we believe necessary to achieve profitability;
- we receive timely delivery of production tools from our equipment suppliers;
- we effectively manage the planned expansion of our operations; and
- we successfully develop and maintain strategic relationships with key partners, including OEMs, system integrators and distributors, who deal directly with end-users in our target markets.

Each of these factors is critical to our success, and accomplishing each of these tasks may take longer or cost more than expected, or may never be accomplished. It also is likely that problems that we cannot now anticipate will arise and require solution by us. If we do not, our business, results of operations and financial condition could be materially and adversely affected.

We have to date incurred net losses and may be unable to generate sufficient sales in the future to become profitable.

We incurred net losses of $6.5 million in the fiscal year ended December 31, 2007 and $2.4 million in the three months ended March 31, 2008 and reported an accumulated deficit of $14.3 million as of March 31, 2008. We expect to incur net losses for the foreseeable future. Our ability to achieve profitability depends on a number of factors, including the growth rate of the solar energy industry, market acceptance of thin-film and other PV modules, the competitiveness of our PV modules and our

ability to increase production volumes. If we are unable to generate sufficient revenue to achieve profitability and positive cash flows, we might be unable to satisfy our commitments and may have to discontinue operations. We cannot assure you that we will be successful in establishing ourselves as a profitable enterprise.

Our business is based on a new and unproven technology, and if our PV modules or processes fail to achieve the performance and cost metrics that we expect, then we may be unable to develop demand for our PV modules and generate sufficient revenue to support our operations.

Our CIGS on flexible plastic substrate technology is a new and unproven technology in commercial scale production. Our business plan and strategies assume that we will be able to achieve certain milestones and metrics in terms of throughput, uniformity of cell efficiencies, yield, encapsulation, packaging, cost and other production parameters. We cannot assure you that all of our technology will prove to be commercially viable in accordance with our plan and strategies. Further, we may experience operational problems with such technology after its commercial introduction that could delay or defeat the ability of such technology to generate revenue or operating profits. If we are unable to achieve our targets on time and within our planned budget, then we may not be able to develop adequate demand for our PV modules, and our business, results of operations and financial condition could be materially and adversely affected.

We currently do not have certified PV modules and have recorded no sales of such products; further, we expect that significant PV module sales will not occur for some time.

We have recorded no sales of PV modules and have no contracts for such sales. Because we do not plan to commence commercial production until the end of the second quarter of 2008, and because we believe that our PV modules will need to be certified in order for them to be commercially viable, it will be several months before we record significant PV module sales, if ever. We expect that it will be some time before we can determine whether our expectations relating to our products and their target markets are justified. Further, because we will be required to invest substantial resources in pursuing our target markets in advance of any significant revenue stream that may result from such investments, an unanticipated or longer than expected delay of revenue ramp-up could put a strain on our resources, adversely affecting our business, results of operation and financial condition, and could require us to seek additional capital. See "Risk Factors The net proceeds from this offering may be insufficient to fund our planned expansion to approximately 30 MW of rated capacity; also, our planned expansion to approximately 110 MW of rated capacity will require additional capital which we may not be able to obtain on favorable terms, if at all, or without dilution to our stockholders."

A failure or unanticipated delay in securing any necessary or desired certification for our PV modules from government or regulatory organizations could impair sales of our PV modules and materially and adversely affect our results of operations and financial condition.

In order for our PV modules to be commercially sold for use in our target markets, they must first be certified by certain government or regulatory organizations, such as UL, IEC and TÜV. We believe that, in some cases, these certifications would be sought by our customers and, in other cases, by us. A failure or unanticipated delay in securing any necessary or desired certification for our PV modules could impair sales of our PV modules and materially and adversely affect our business, results of operations and financial condition.

Failure to receive timely delivery of production tools from our equipment suppliers could delay our planned expansion of manufacturing capacity and materially and adversely affect our results of operations and financial condition.

Our planned expansion of manufacturing capacity and commercialization timeline depend on the timely delivery of production tools from our equipment suppliers. The relationships with our chosen equipment suppliers are relatively new, and at this point in time we cannot be certain that the equipment orders we place with these suppliers will be fulfilled as we expect or in a timely manner. If delivery of production tools is not made on schedule or at all, then we might be unable to carry out our commercialization and manufacturing expansion plans, produce PV modules in the volumes and at the times that we expect or generate sufficient revenue from operations, and our business, results of operations and financial condition could be materially and adversely affected.

Failure to expand our manufacturing capacity successfully would adversely impact our ability to sell PV modules into our target markets and would materially and adversely affect our business, results of operations and financial condition.

Our growth plan calls for the installation and operation of additional production tools to achieve the manufacturing capacities and cost efficiencies necessary to compete in our target markets. The successful completion and operation of future production tools will require substantial engineering resources and is subject to significant risks, including risks of cost overruns and delays, risks that we may not be able to successfully acquire, install, combine or operate the equipment needed, or the possibility that one or more of the production tools may never be qualified or become operational. Furthermore, we may never be able to operate our production processes in high volume, make planned process and equipment improvements, attain projected manufacturing yields or desired annual capacity, obtain timely delivery of production tools, obtain on reasonable terms adequate facilities in which to install the production tools, configure or retrofit our facilities to accommodate the production tools or obtain the permits to do so, or hire and train the additional employees and management needed to operate and maintain the production tools. Failure to meet these objectives on time and within our planned budget could materially and adversely affect our business, results of operations and financial condition.

Failure to consummate strategic relationships with key partners in the BIPV and EIPV markets, or with distributors in the commodity solar panel market, could adversely affect our projected sales, growth and revenues.

We intend to sell thin-film PV modules for use in BIPV and EIPV products, such as roofing shingles, siding and facades, metal and composite panels, roofing membranes, electronic packages, casings, battery packs and portable power systems. We also intend to sell commodity modules for use in the commodity solar panel market. Our marketing and distribution strategy is to form strategic relationships with BIPV and EIPV suppliers to provide a foothold in these target markets. We also intend to form strategic relationships with distributors in the commodity solar panel market. If we are unable to successfully establish working relationships with such market participants, or if due to cost, technical or other factors, our PV modules prove unsuitable for use in such applications, our projected revenues and operating results could be adversely affected. Further, to the extent that we are able to establish strategic relationships with key partners and distributors, those relationships may be on a non-exclusive basis (for example, our strategic relationship with Norsk Hydro is non-exclusive), which means that our partners are not obligated to use us as their sole source of PV modules, and may instead choose to use the products of our competitors. Any such reduction in demand for our PV modules may have a material adverse effect on our revenues, results of operations and financial condition.

The net proceeds from this offering may be insufficient to fund our planned expansion to approximately 30 MW of rated capacity; also, our planned expansion to approximately 110 MW of rated capacity will require additional capital which we may not be able to obtain on favorable terms, if at all, or without dilution to our stockholders.

The net proceeds from this offering, together with current cash, cash equivalents and short term investments (including the proceeds we received from Norsk Hydro in March 2008 from its exercise of an option to purchase shares of our common stock), may not be sufficient for us to design, purchase, install, qualify and test the production tools for our planned expansion to 30 MW of rated capacity. See "Use of Proceeds" and "Management's Discussion and Analysis of Financial Condition and Results of Operations Liquidity and Capital Resources." Unanticipated costs or cost overruns that we may incur while expanding rated capacity to approximately 30 MW may prevent us from achieving that objective without the need for additional capital. Further, our planned expansion to approximately 110 MW of total rated capacity will require additional capital.

We currently are unable to determine what forms of financing, if any, will be available to us after this offering. If we raise additional funds through the issuance of equity or convertible debt securities, the percentage ownership of our existing stockholders could be significantly diluted, and these newly issued securities may have rights, preferences or privileges senior to those of existing stockholders, including those acquiring shares in this offering. If we raise additional funds through debt financing, which may involve restrictive covenants, our ability to operate our business may be restricted. We cannot assure you that additional financing will be available on terms favorable to us, or at all. If adequate funds are not available or are not available on acceptable terms, if and when needed, our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our products, expand capacity to approximately 110 MW of total rated capacity, or otherwise respond to competitive pressures could be significantly limited, and our business, results of operations and financial condition could be materially and adversely affected.

In addition, the terms of our loan from the Colorado Housing and Finance Authority (CHFA) contain covenants that limit our ability, without the consent of CHFA (which consent by the terms of the loan is not subject to a reasonableness requirement), to create or incur additional indebtedness (other than obligations created or incurred in the ordinary course of business); merge or consolidate with any other entity; or make loans or advances to our officers, shareholders, directors or employees. We expect that this CHFA loan will be replaced by a permanent CHFA loan by January 2009, and that documentation relating to the permanent loan may contain negative covenants similar or identical to those associated with the current loan. The permanent loan is expected to have a term of 20 years from the commencement of the original CHFA loan. If we prepay the permanent loan during the initial seven years of its term, we will be subject to a "yield maintenance" prepayment penalty. See "Management's Discussion and Analysis of Financial Condition and Results of Operations Liquidity and Capital Resources." The presence of these negative covenants gives CHFA the ability to bar us from engaging in certain transactions in the future that we may determine are necessary to meet our business objectives, including debt offerings and acquisitions of or by other companies. If CHFA were to withhold its written consent under these or other circumstances, we could be forced to prepay such loans at a premium, which could adversely affect our business, results of operation and financial condition.

We may be unable to manage the expansion of our operations effectively.

We will need to significantly expand our operations in order to reduce the incremental manufacturing costs of our PV modules, secure contracts of commercially material amounts with reputable customers and capture a meaningful share of our target markets. To manage the rapid expansion of our operations, we will be required to improve our operational and financial systems, procedures and controls and expand, train and manage our growing employee base. Our management

team will also be required to maintain and cultivate our relationships with customers, suppliers and other third parties and attract new customers and suppliers. In addition, our current and planned operations, personnel, facility size and configuration, systems and internal procedures and controls might be inadequate or insufficient to support our future growth. If we cannot manage our growth effectively, we may be unable to take advantage of market opportunities, execute our business strategies or respond to competitive pressures, resulting in a material and adverse effect to our business, results of operations and financial condition.

Our PV modules may never gain market acceptance, in which case we would be unable to sell our PV modules or achieve profitability.

Demand for our PV modules may never develop, and our PV modules may never gain market acceptance, if we fail to produce PV modules that compete favorably against competing products on the basis of cost, quality, weight, efficiency and performance. Demand for our PV modules also will depend on our ability to develop and maintain successful relationships with key partners, including OEMs, system integrators and distributors. If our PV modules fail to gain market acceptance as quickly as we envision or at all, our business, results of operations and financial condition could be materially and adversely affected.

If sufficient demand for PV solutions does not develop or takes longer to develop than we anticipate, we may be unable to grow our business, generate sufficient revenue to attain profitability or continue operations.

The solar energy industry is at a relatively early stage of development, and the extent to which PV modules, including our own, will be widely adopted is uncertain. If PV technology proves unsuitable for widespread adoption or if demand for PV modules fails to develop sufficiently, we may be unable to grow our business, generate sufficient sales to attain profitability or continue operations. Many factors, many of which are outside of our control, may affect the viability of widespread adoption of PV technology and demand for PV modules, including:

- the cost effectiveness of PV modules and installed PV systems relative to other renewable energy sources, such as wind, geothermal and tidal power;
- the cost effectiveness of PV modules and installed PV systems relative to conventional carbon-based and other energy sources, such as coal, oil, natural gas and nuclear, and whether the levelized cost of PV can approach that of these conventional energy sources;
- whether PV-generated power reaches grid parity in the geographic markets where our products will be used;
- the availability and amount of government subsidies and incentives to support development of the solar energy industry;
- the deregulation of the electric power industry and the broader energy industry;
- the emergence of other disruptive technologies in the energy industry;
- the ease with which PV solutions can penetrate and adapt to existing energy industry infrastructure;
- the availability of raw materials used in the manufacture of PV products; and
- availability of capital to fund development of technology in the solar energy market.

If the supply of PV modules exceeds the demand for those modules, then we may be forced to reduce the price of our PV modules in order to compete effectively.

Some industry reports forecast overcapacity in the PV module market in ensuing years. In an overcapacity scenario, the supply of PV modules by manufacturers outstrips demand for those products. If either the overall PV module market or our target markets encounter an overcapacity scenario, we may be forced to scale back production or reduce the price of our PV modules in order to generate sales. In either case, our business, results of operations and financial condition could be materially and adversely affected.

Reduced growth in or the reduction, elimination, modification or expiration of government subsidies and economic incentives for solar electricity applications could reduce demand for our products.

National, regional and local governmental bodies in many countries, most notably Germany, Italy, Spain, France, South Korea, Japan, Canada and the United States, have provided support in the form of feed-in tariffs, rebates, tax write-offs and other incentives to end-users, distributors, system integrators and manufacturers of PV products. If any of these subsidies or incentives is discontinued, reduced or substantially modified, if growth in any such subsidies or incentives is reduced, or if renewable portfolio standards or similar production requirements are changed or eliminated, demand for our PV modules in the affected country or countries could decline or never develop, and our results of operations and financial condition could be materially and adversely affected as a result.

We face intense competition from manufacturers of c-Si-based PV modules, other manufacturers of thin-film PV modules and other companies in the solar energy industry.

The solar energy and renewable energy industries are both highly competitive and continually evolving as participants strive to distinguish themselves within their markets and compete with the larger electric power industry. We believe that our main sources of competition are c-Si PV manufacturers, other thin-film PV manufacturers and companies developing other solar solutions, such as solar thermal and concentrated PV technologies.

The thin-film component of the industry is largely made up of a broad mix of technology platforms at various stages of development, and consists of a large and growing number of medium- and small-sized companies. Two of the largest thin-film PV manufacturers are First Solar, Inc. (USA) and United Solar Ovonic LLC (USA), each of which has reported an installed capacity of 100 MW or greater. First Solar manufactures PV modules using CdTe affixed to glass. United Solar Ovonic manufactures PV modules using a-Si affixed to flexible metal foil. Competitors currently developing or selling CIGS-based PV modules include AVANCIS GmbH & Co. KG, Global Solar Energy, Inc., HelioVolt Corporation, Honda Soltec Co. Ltd., MiaSolé, NanoSolar, Inc., SoloPower, Inc. and Würth Solar GmbH & Co. We believe that a number of manufacturers that traditionally have manufactured and sold c-Si-based modules have entered, or in the future may enter, the market for thin-film PV modules and, potentially, CIGS-based PV modules.

Many of our existing and potential competitors have substantially greater financial, technical, manufacturing and other resources than we do. A competitor's greater size provides them with a competitive advantage because they often can realize economies of scale and purchase certain raw materials at lower prices. Many of our competitors also have greater brand name recognition, established distribution networks and large customer bases. In addition, many of our competitors have well-established relationships with our current and potential partners and distributors and have extensive knowledge of our target markets. As a result of their greater size, these competitors may be able to devote more resources to the research, development, promotion and sale of their products or respond more quickly to evolving industry standards and changes in market conditions than we can. Our failure to adapt to changing market conditions and to compete successfully with existing or future

competitors could materially and adversely affect our business, results of operations and financial condition.

A significant increase in the supply of silicon feedstock or a significant reduction in the manufacturing cost of c-Si-based PV modules could lead to pricing pressures on PV modules generally and force us to reduce the sales price of our PV modules.

A significant increase in the supply of silicon feedstock or a significant reduction in the manufacturing cost of c-Si-based PV modules could lead to pricing pressures on PV modules generally. In the face of such downward pricing pressures, we might be forced to reduce the sales prices of our PV modules, which, absent a commensurate decrease in our manufacturing costs, could materially and adversely affect our results of operations and financial condition and prevent us from achieving profitability.

As a public company we are subject to complex legal and accounting requirements that require us to incur substantial expenses, and our financial controls and procedures may not be sufficient to ensure timely and reliable reporting of financial information, which, as a public company, could materially harm our stock price and listing on the Nasdaq Global Market.

As a public company, we are subject to numerous legal and accounting requirements that do not apply to private companies. The cost of compliance with many of these requirements is substantial, not only in absolute terms but, more importantly, in relation to the overall scope of the operations of a small company. Our relative inexperience with these requirements may increase the cost of compliance and may also increase the risk that we will fail to comply. Failure to comply with these requirements can have numerous adverse consequences including, but not limited to, our inability to file required periodic reports on a timely basis, loss of market confidence, delisting of our securities and/or governmental or private actions against us. We cannot assure you that we will be able to comply with all of these requirements or that the cost of such compliance will not prove to be a substantial competitive disadvantage vis-à-vis our privately held and larger public competitors.

The Sarbanes-Oxley Act of 2002 (Sarbanes-Oxley) requires, among other things, that we maintain effective internal control over financial reporting and disclosure controls and procedures. In particular, we must perform system and process evaluation and testing of our internal control over financial reporting to allow management and our independent registered public accounting firm to report on the effectiveness of our internal control over financial reporting, as required by Section 404 of Sarbanes-Oxley. We currently expect that we will be required to comply with all the requirements of Section 404 beginning with our annual report on Form 10-K for the fiscal year ending December 31, 2008. Our compliance with Section 404 of Sarbanes-Oxley will require that we incur substantial accounting expense and expend significant management efforts.

The effectiveness of our controls and procedures may in the future be limited by a variety of factors, including:

- faulty human judgment and simple errors, omissions or mistakes;
- fraudulent action of an individual or collusion of two or more people;
- inappropriate management override of procedures; and
- the possibility that any enhancements to controls and procedures may still not be adequate to assure timely and accurate financial information.

If we are not able to comply with the requirements of Section 404 in a timely manner, or if we or our independent registered public accounting firm identify deficiencies in our internal control over

financial reporting that are deemed to be material weaknesses, we may be subject to Nasdaq delisting, investigations by the U.S. Securities and Exchange Commission (SEC) and civil or criminal sanctions.

Our ability to successfully implement our business plan and comply with Section 404 requires us to be able to prepare timely and accurate financial statements. We expect that we will need to continue to improve existing, and implement new operational, financial and accounting systems, procedures and controls to manage our business effectively.

Any delay in the implementation of, or disruption in the transition to, new or enhanced systems, procedures or controls may cause our operations to suffer, and we may be unable to conclude that our internal control over financial reporting is effective and to obtain an unqualified report on internal controls from our auditors as required under Section 404 of Sarbanes-Oxley. If we are unable to complete the required Section 404 assessment as to the adequacy of our internal control over financial reporting, if we fail to maintain or implement adequate controls, or if our independent registered public accounting firm is unable to provide us with an unqualified report as to the effectiveness of our internal control over financial reporting as of the date of our first Form 10-K for which compliance is required, our ability to obtain additional financing could be impaired. In addition, investors could lose confidence in the reliability of our internal control over financial reporting and in the accuracy of our periodic reports filed under the Securities Exchange Act of 1934, as amended (Exchange Act). A lack of investor confidence in the reliability and accuracy of our public reporting could cause our stock price to decline.

The interests of our largest stockholder, Norsk Hydro, may conflict with our interests or your interests now or in the future.

Norsk Hydro currently owns approximately 35% of all issued and outstanding shares of our common stock and, until June 15, 2009, has an option to acquire additional shares to maintain its ownership of up to 35% of all issued and outstanding shares of our common stock. See "Certain Relationships and Related Party Transactions Transactions Involving Norsk Hydro Produksjon AS." As a result, Norsk Hydro may have the ability to prevent any transaction that requires the approval of stockholders regardless of whether other stockholders believe that any such transaction is in their own best interests. Additionally, Norsk Hydro currently holds one seat on our Board of Directors, which affords Norsk Hydro additional control and influence over matters affecting our business.

Norsk Hydro may from time to time acquire and hold interests in businesses that compete directly or indirectly with us. Norsk Hydro also may pursue opportunities (including by acquisition) that may be adverse to, or be in direct or indirect competition with, us. Additionally, our potential customers may be competitors of Norsk Hydro and our interests in selling to those customers could be divergent from Norsk Hydro's competitive interests. So long as Norsk Hydro continues to own a significant amount of the outstanding shares of our common stock, Norsk Hydro may be able to strongly influence or effectively control our decisions.

Currency translation risk may negatively affect our net sales, cost of sales, gross margin or profitability and could result in exchange losses.

Although our reporting currency is the U.S. dollar, we may conduct business and incur costs in the local currencies of other countries in which we operate, make sales or buy equipment or materials. As a result, we are subject to currency translation risk. For example, in 2007 we purchased equipment from suppliers in Japan, the United Kingdom and Germany, and our capital expenditures exceeded budgeted amounts due to the decline of the U.S. dollar versus the British pound and the euro. Until, and in some cases after, we place firm purchase orders for capital equipment with each of our suppliers, changes in currency exchange rates could significantly increase our capital expenditures beyond what we have budgeted. Further, changes in exchange rates between foreign currencies and the U.S. dollar could affect our net sales and cost of sales and could result in exchange losses. We cannot accurately predict future exchange rates or the overall impact of future exchange rate fluctuations on our business, results of operations and financial condition.

We depend on a limited number of third-party suppliers for key raw materials, and their failure to perform could cause manufacturing delays and impair our ability to deliver PV modules to customers in the required quality and quantity and at a price that is profitable to us.

Our failure to obtain raw materials and components that meet our quality, quantity and cost requirements in a timely manner could interrupt or impair our ability to manufacture our PV modules or increase our manufacturing cost. Most of our key raw materials are either sole-sourced or sourced by a limited number of third-party suppliers. As a result, the failure of any of our suppliers to perform could disrupt our supply chain and impair our operations. In addition, many of our suppliers are small companies that may be unable to supply our increasing demand for raw materials as we implement our planned expansion. We may be unable to identify new suppliers in a timely manner or on commercially reasonable terms. Raw materials from new suppliers may also be less suited for our technology and yield PV modules with lower conversion efficiencies, higher failure rates and higher rates of degradation than PV modules manufactured with the raw materials from our current suppliers.

Any change to our relationship with ITN could disrupt certain aspects of our business operations, including our research and development activities.

Pursuant to a Service Center Agreement in place until December 31, 2009, we have the right to use certain of ITN's laboratories, equipment and research and development tools on an as needed basis. Also, pursuant to an Administrative Services Agreement in place until December 31, 2008, ITN provides us with certain administrative services at cost, such as facilities management, equipment maintenance, procurement, information technology and technical support. See "Certain Relationships and Related Party Transactions Transactions with ITN Energy Systems, Inc." We have relied on these arrangements to conduct a large portion of our research and development activities, including those related to development and improvements of new PV technologies that may affect the viability of our products in the future. We also have relied on these arrangements for back office support services at what we believe are competitive prices. Any change to our existing relationship with ITN, including the sale of ITN to a third party or termination or alteration of the Service Center Agreement or Administrative Services Agreement, could disrupt our research and development activities and other aspects of our business. Among other things, we may be forced to seek and obtain access to different sources of laboratory equipment and tools, or we may be forced to find alternative providers of affected administrative services, or to perform administrative services ourselves. We cannot guarantee that we would be able to do so on the same or as favorable terms than we currently have with ITN, or at all; and the increased costs of alternative arrangements may materially and adversely affect our business, results of operations and financial condition.

Our future success depends on retaining our existing management team and hiring and assimilating new key employees, and our inability to attract or retain key personnel would materially harm our business and results of operations.

Our success depends on the continuing efforts and abilities of our executive officers, including Matthew Foster, our President and Chief Executive Officer, Gary Gatchell, our Chief Financial Officer, Dr. Joseph Armstrong, our Chief Technology Officer, Dr. Prem Nath, our Vice President of Manufacturing, and Dr. Mohan Misra, our Chief Strategy Officer. Our future success also will depend on our ability to attract and retain highly skilled employees, including management, technical and sales personnel. In addition, none of our management or employees is subject to non-compete agreements. The loss of any of our key personnel, the inability to attract, retain or assimilate key personnel in the future, or delays in hiring required personnel could materially harm our business, results of operations and financial condition.

Problems with product quality or performance may cause us to incur warranty expenses, damage our market reputation and prevent us from maintaining or increasing our market share.

We do not have sufficient life cycle data for our thin-film PV modules to reliably predict their lifespans in the field. Pending collection of such data over time, we may not be able to offer customers warranty terms equivalent to those of our competitors, which may adversely impact sales or market acceptance of our PV modules. Further, even if we offer warranty terms equivalent to those of our competitors, at this time we cannot guarantee that our PV modules will perform as expected during the lifespans that our customers will expect. If our PV modules fail to perform as expected while under warranty, or if we are unable to support the warranties, sales of our PV modules may be adversely affected or our costs may increase, and our business, results of operations and financial condition could be materially and adversely affected.

Our failure to further refine our technology and develop and introduce improved PV modules could render our PV modules uncompetitive or obsolete and adversely affect sales of our PV modules and our ability to be profitable.

We will need to invest significant financial resources in research and development to keep pace with technological advances in the solar energy industry. However, research and development activities are inherently uncertain and we could encounter practical difficulties in commercializing our research results. Our expenditures on research and development may not produce corresponding benefits. Other companies are developing a variety of competing PV technologies and could produce PV modules that prove more cost-effective or have better performance or reliability than our PV modules. As a result, our PV modules may be rendered obsolete or unattractive by the technological advances of others, which could reduce sales of our PV modules and adversely affect our business, results of operations and financial condition.

Our PV modules contain limited amounts of cadmium sulfide, and claims of human exposure or future regulations could have a material adverse effect on our business, results of operations and financial condition.

Our PV modules contain limited amounts of cadmium sulfide, which is regulated as a hazardous material due to the adverse health effects that may arise from human exposure. We cannot assure you that human or environmental exposure to cadmium sulfide used in our PV modules will not occur. Any such exposure could result in third-party claims against us, damage to our reputation and heightened regulatory scrutiny of our PV modules. Future regulation relating to the use of cadmium in various products could impact the manufacture and sale of our PV modules and could require us to incur unforeseen environmental costs. The occurrence of future events such as these could limit our ability to sell and distribute our PV modules, and could have a material adverse effect on our business, results of operations and financial condition.

Environmental obligations and liabilities could have a substantial negative impact on our financial condition, cash flows and profitability.

We are subject to a variety of federal, state, local and foreign laws and regulations relating to the protection of the environment, including those governing the use, handling, generation, processing, storage, transportation and disposal of, or human exposure to, hazardous and toxic materials, the discharge of pollutants into the air and water, and occupational health and safety. We are also subject to environmental laws which allow regulatory authorities to compel, or seek reimbursement for, cleanup of environmental contamination at sites now or formerly owned or operated by us and at facilities where our waste is or has been disposed. We may incur significant costs and capital expenditures in complying with these laws and regulations. In addition, violations of, or liabilities under, environmental laws or permits may result in restrictions being imposed on our operating activities or in our being subjected to substantial fines, penalties, criminal proceedings, third party property damage or personal injury claims, cleanup costs or other costs. Also, future developments such as more aggressive enforcement policies, the implementation of new, more stringent laws and regulations, or the discovery of presently unknown environmental conditions or non-compliance may require expenditures that could have a material adverse effect on our business, results of operations and financial condition. Further, greenhouse gas emissions have increasingly become the subject of international, national, state and local attention. Although future regulations could potentially lead to an increased use of alternative energy, there can be no guarantee that such future regulations will encourage solar technology. Given our limited history of operations, it is difficult to predict future environmental expenses.

Our intellectual property rights may be inadequate to protect our business, which may result in the unauthorized use of our products or reduced sales or otherwise reduce our ability to compete.

Our business and competitive position depend upon our ability to protect our intellectual property rights and proprietary technology, including any PV modules that we develop. We attempt to protect our intellectual property rights, both in the United States and in foreign countries, through a combination of patent, trade secret and other intellectual property laws, as well as licensing agreements and third-party nondisclosure and assignment agreements. Because of the differences in foreign patent and other laws concerning intellectual property rights, our intellectual property rights may not receive the same degree of protection in foreign countries as they would in the United States. Our failure to obtain or maintain adequate protection of our intellectual property rights for any reason could have a material adverse effect on our business, results of operations and financial condition. Further, any patents issued in connection with our efforts to develop new technology for PV modules may not be broad enough to protect all of the potential uses of our technology.

We have applied for patent protection in the U.S. relating to certain existing and proposed technologies and processes and services. While we generally apply for patents in those countries where we intend to make, have made, use, or sell patented products, we may not accurately predict all of the countries where patent protection will ultimately be desirable. If we fail to timely file a patent application in any such country, we may be precluded from doing so at a later date. Furthermore, we cannot assure you that any of our patent applications will be approved. We also cannot assure you that the patents issued as a result of our foreign patent applications will have the same scope of coverage as our United States patents. The patents we own could be challenged, invalidated or circumvented by others and may not be of sufficient scope or strength to provide us with any meaningful protection or commercial advantage. Further, we cannot assure you that competitors will not infringe our patents, or that we will have adequate resources to enforce our patents.

Many patent applications in the U.S. are maintained in secrecy for a period of time after they are filed, and since publication of discoveries in the scientific or patent literature tends to lag behind actual discoveries by several months, we cannot be certain that we will be the first creator of inventions covered by any patent applications we make or that we will be the first to file patent applications on

such inventions. Because some patent applications are maintained in secrecy for a period of time, there is also a risk that we could adopt a technology without knowledge of a pending patent application, which technology would infringe a third party patent once that patent is issued.

We also rely on unpatented proprietary technology. It is possible that others will independently develop the same or similar technology or otherwise obtain access to our unpatented technology. To protect our trade secrets and other proprietary information, we require our employees, consultants and advisors to execute proprietary information and invention assignment agreements when they begin working for us. We cannot assure you that these agreements will provide meaningful protection of our trade secrets, know-how or other proprietary information in the event of any unauthorized use, misappropriation or disclosure of any such trade secrets, know-how or other proprietary information. Despite our efforts to protect this information, unauthorized parties may attempt to obtain and use information that we regard as proprietary. If we are unable to maintain the proprietary nature of our technologies, we could be materially adversely affected.

Although we rely on copyright laws to protect the works of authorship created by us, we do not register the copyrights in all of our copyrightable works. Copyrights of U.S. origin must be registered before the copyright owner may bring an infringement suit in the United States. Furthermore, if a copyright of U.S. origin is not registered within three months of publication of the underlying work, the copyright owner is precluded from seeking statutory damages or attorneys' fees in any United States enforcement action, and is limited to seeking actual damages and lost profits. Accordingly, if one of our unregistered copyrights of U.S. origin is infringed by a third party, we will need to register the copyright before we can file an infringement suit in the United States, and our remedies in any such infringement suit may be limited.

In addition, when others control the prosecution, maintenance and enforcement of certain important intellectual property, such as technology licensed to us, the protection of the intellectual property rights may be outside of our control. If the entity that controls intellectual property rights that are licensed to us does not adequately protect those rights, our rights may be impaired, which may impact our ability to develop, market and commercialize our products. Further, if we breach the terms of any license agreement pursuant to which a third party licenses us intellectual property rights, our rights under that license may be affected and we may not be able to continue to use the licensed intellectual property rights, which could adversely affect our ability to develop, market and commercialize our products.

Further, some of our patents and related know-how and other technology may cover inventions that were conceived or first reduced to practice under, or in connection with, U.S. government contracts or other federal funding agreements. Although we retain ownership of intellectual property developed during the performance of government contracts, the U.S. government may retain a nonexclusive, non-transferable, irrevocable, paid-up license to practice or have practiced for or on behalf of the U.S. the invention throughout the world. Further, the federal government may retain the right to impose a compulsory license in certain circumstances through the exercise of "march-in" rights under which it can compel us to license the intellectual property. If the government were to exercise "march-in" rights, we could be forced to license intellectual property developed by us on terms unfavorable to us, and our business could be materially and adversely affected. Furthermore, our ability to exclusively license or assign the intellectual property developed under these federal funding agreements to third parties may be limited or subject to the U.S. government's approval or oversight. These limitations could have a significant impact on the commercial value of the developed intellectual property in the U.S., and similar rights may be present in other countries. If one or more governments should exercise such rights, our ability to achieve profitability could be compromised and our business prospects harmed.

Our means of protecting our intellectual property rights may not be adequate, and our competitors may: independently develop substantially equivalent proprietary information, products and techniques; otherwise gain access to our proprietary information; or design around our patents or other intellectual property, any of which could result in significant costs or substantial damages to our business and our inability to manufacture, market or sell our products.

If third parties claim that we are infringing or misappropriating their intellectual property rights, we could be prohibited from selling our PV modules, be required to obtain licenses from third parties or be forced to develop non-infringing alternatives, and we could be subject to substantial monetary damages and injunctive relief.

The PV industry is characterized by the existence of a large number of patents and frequent litigation based on allegations of patent infringement. We are aware of numerous issued patents and pending patent applications owned by third parties that may relate to current and future generations of solar energy. The owners of these patents may assert that the manufacture, use or sale of any of our products infringes one or more claims of their patents. Moreover, because patent applications can take many years to issue, there may be currently pending applications, unknown to us, which may later result in issued patents that materially and adversely affect our business. Third parties could also assert claims against us that we have infringed or misappropriated their intellectual property rights. Whether or not such claims are valid, we cannot be certain that we have not infringed the intellectual property rights of such third parties. Any infringement or misappropriation claim could result in significant costs or substantial damages to our business or an inability to manufacture, market or sell any of our PV modules that are found to infringe or misappropriate. Even if obtaining a license were feasible, it could be costly and time consuming. Even if we were to prevail in any such action, the litigation could result in substantial cost and diversion of resources that could materially and adversely affect our business. The large number of patents, the rapid rate of new patent issuances, the complexities of the technology involved and uncertainty of litigation increase the risk of business assets and management's attention being diverted to patent litigation.

We currently anticipate having substantial international operations that will subject us to a number of risks, including potential unfavorable political, regulatory, labor and tax conditions in foreign countries.

We expect to expand our operations abroad in the future and, as a result, we may be subject to the legal, political, social and regulatory requirements and economic conditions of foreign jurisdictions. Risks inherent to international operations, include, but are not limited to, the following:

- difficulty in procuring supplies and supply contracts abroad;
- difficulty in enforcing agreements in foreign legal systems;
- foreign countries imposing additional withholding taxes or otherwise taxing our foreign income, imposing tariffs or adopting other restrictions on foreign trade and investment, including currency exchange controls;
- inability to obtain, maintain or enforce intellectual property rights;
- risk of nationalization;
- changes in general economic and political conditions in the countries in which we may operate, including changes in the government incentives we might rely on;
- unexpected adverse changes in foreign laws or regulatory requirements, including those with respect to environmental protection, export duties and quotas;
- difficulty with staffing and managing widespread operations;

trade barriers such as export requirements, tariffs, taxes and other restrictions and expenses, which could increase the prices of our products and make us less competitive in some countries; and

difficulty of and costs relating to compliance with the different commercial and legal requirements of the international markets in which we plan to offer and sell our PV modules.

Our business in foreign markets will require us to respond to rapid changes in market conditions in these countries. Our overall success as an international business depends, in part, on our ability to succeed in differing legal, regulatory, economic, social and political conditions. If we are not be able to develop and implement policies and strategies that are effective in each location where we will do business, then our business, results of operations and financial condition could be materially and adversely affected.

Our failure to secure proper sites and facilities in which to install manufacturing equipment could adversely affect our business and results of operations.

We intend to install manufacturing equipment both domestically and abroad. Selecting suitable locations for this equipment requires consideration of a variety of factors, including availability of a skilled workforce, size and configuration of facilities, proximity to customers, transportation and infrastructure, cost of land and facilities, currency exchange rates and the prevailing political and regulatory environment. A variety of factors related to the location and selection of such sites and facilities could cause our operations to miss our expectations, and adversely affect our business, results of operations and financial condition.

Our failure to qualify for Small Business Innovation Research funding could adversely impact our revenues from research and development contracts; further, upon the exercise of "march-in" rights by the federal government, we could be forced to license intellectual property developed by us on terms unfavorable to us.

We currently receive funding for research and development under the Small Business Innovation Research (SBIR) program. In 2007, our revenues generated from performance of these contracts totaled approximately $1.0 million. In order to continue to qualify for this funding, we must remain American-owned and independently operated and our size must remain under 500 employees. As a result of our relationship with Norsk Hydro and our planned expansion plans, we cannot guarantee that we will be able to continue to qualify for SBIR funding. If we fail to qualify for SBIR funding, our revenues from research and development could decline or cease, and our net income and financial condition could be could materially and adversely affected.

Risks Relating to an Investment in Our Common Stock

Our common stock could be subject to extreme volatility.

Our common stock is currently traded on the Nasdaq Global Market. The trading price of our common stock from time to time has fluctuated widely and may be subject to similar fluctuations in the future. For example, for the calendar year ended December 31, 2007, the 52-week high and low reported closing prices of our common stock were $28.35 and $2.41, respectively. The trading price of our common stock in the future may be affected by a number of factors, including events described in these "Risk Factors." In recent years, broad stock market indices, in general, and smaller capitalization and PV companies, in particular, have experienced substantial price fluctuations. In a volatile market, we may experience wide fluctuations in the market price of our common stock. These fluctuations may have a negative effect on the market price of our common stock regardless of our operating performance. In the past, following periods of volatility in the market price of a company's securities, securities class action litigation has often been instituted. A securities class action suit against us could

result in substantial costs, potential liabilities and the diversion of management's attention and resources, and could have a material adverse effect on our financial condition.

Future sales or the potential for future sales of our securities may cause the trading price of our common stock to decline and could impair our ability to raise capital through subsequent equity offerings.

Sales of a substantial number of shares of our common stock or other securities in the public markets, or the perception that these sales may occur, could cause the market price of our common stock or other securities to decline and could materially impair our ability to raise capital through the sale of additional securities. A substantial number of our outstanding shares of common stock are subject to lock-up agreements. As these shares are released from the lock-up agreements, the sale of such shares could cause the market price of our common stock to decline. Furthermore, a large number of our outstanding shares are not registered under the Securities Act of 1933, as amended (the Securities Act). If and when these shares are registered and become eligible for sale to the public market, the market price of our common stock could decline.

While any of our warrants are outstanding, it may be more difficult to raise additional equity capital.

There currently are warrants outstanding to purchase our securities. These warrants include Class B warrants and warrants issued to the representative of the underwriters in our initial public offering. During the term that any of our warrants are outstanding, the holders of those warrants are given the opportunity to profit from a rise in the market price of our common stock. The Class B warrants are not redeemable by us. We may find it more difficult to raise additional equity capital while these warrants are outstanding. At any time during which these warrants are likely to be exercised, we may be unable to obtain additional equity capital on more favorable terms from other sources. See "Description of Securities Class B Warrants" and "Description of Securities IPO Warrants."

Some provisions of our charter documents and Delaware law may have anti-takeover effects that could discourage an acquisition of us by others, even if an acquisition would be beneficial to our stockholders, and may prevent attempts by our stockholders to replace or remove our current management.

Provisions in our Certificate of Incorporation and Bylaws, as well as provisions of Delaware law, could make it more difficult for a third party to acquire us, or for a change in the composition of our Board of Directors or management to occur, even if doing so would benefit our stockholders. These provisions include:

- authorizing the issuance of "blank check" preferred stock, the terms of which may be established and shares of which may be issued without stockholder approval;
- dividing our Board of Directors into three classes;
- limiting the removal of directors by the stockholders; and
- limiting the ability of stockholders to call a special meeting of stockholders.

In addition, we are subject to Section 203 of the Delaware General Corporation Law, which generally prohibits a Delaware corporation from engaging in any of a broad range of business combinations with an interested stockholder for a period of three years following the date on which the stockholder became an interested stockholder, unless such transactions are approved by our Board of Directors. This provision could have the effect of delaying or preventing a change of control, whether or not it is desired by or beneficial to our stockholders. See "Description of Securities Anti-Takeover Effects of Certain Provisions of Delaware Law and Our Certificate of Incorporation and Bylaws."

FORWARD-LOOKING STATEMENTS

This prospectus includes "forward-looking statements" that involve risks and uncertainties. Forward-looking statements include statements concerning our plans, objectives, goals, strategies, future events, future net sales or performance, capital expenditures, financing needs, plans or intentions relating to acquisitions, business trends and other information that is not historical information and, in particular, appear under headings including "Prospectus Summary," "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Industry" and "Business." When used in this prospectus, the words "estimates," "expects," "anticipates," "projects," "plans," "intends," "believes," "forecasts," "foresees," "likely," "may," "should," "goal," "target" and variations of such words or similar expressions are intended to identify forward-looking statements. All forward-looking statements are based upon information available to us on the date of this prospectus.

These forward-looking statements are subject to risks, uncertainties and other factors, many of which are outside of our control, that could cause actual results to differ materially from the results discussed in the forward-looking statements, including, among other things, the matters discussed in this prospectus in the sections captioned "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations." Factors you should consider that could cause these differences are:

Our limited operating history and lack of profitability;

Our ability to meet the cost and performance metrics that we have forecasted;

Our ability to develop demand for, and sales of, our PV modules and establish strategic relationships with key partners, including OEMs, system integrators and distributors;

Our ability to obtain necessary or desired certifications for our PV modules;

Whether we receive timely delivery of production tools from our equipment suppliers;

Our ability to design, purchase, install, qualify and operate production tools pursuant to our business plan and within budgeted amounts;

The extent to which we are able to reduce the per watt manufacturing costs of our PV modules, and the extent to which our competitors are able to do the same with their PV modules;

Global demand for electricity and the market for renewable energy, including solar energy;

The cost-effectiveness of PV-generated energy relative not only to that generated from conventional sources such as fossil fuels, but also to that generated from other renewable sources such as wind, geothermal and tidal power;

The availability of, or changes to, government policies, subsidies and incentives that affect the use or cost of renewable energy;

The emergence of disruptive or competing technologies in the energy industry;

Our competitive position and that of our PV modules relative to others in the PV and thin-film markets;

The extent to which our interests align with or deviate from that of Norsk Hydro, our largest stockholder;

Foreign currency exchange fluctuations, political instability in certain foreign markets or the general state of geopolitical affairs;

The supply and price of equipment, components and raw materials;

The status of our relationship with ITN;

Our ability to attract and retain key executives and employees;

Our continued investment in research and development, and our ability to remain competitive through development of new technologies;

The extent to which we are able to manage the expansion of our operations effectively, both domestically and abroad;

Commencement of legal proceedings against us or by us, including proceedings relating to environmental matters or intellectual property rights;

Our ability to expand and protect the intellectual property portfolio that relates to our PV modules and processes;

The extent to which we qualify to perform research and development under the federal government's SBIR program; and

General economic and business conditions.

There may be other factors that could cause our actual results to differ materially from the results referred to in the forward-looking statements. We undertake no obligation to publicly update or revise forward-looking statements to reflect subsequent events or circumstances after the date made or to reflect the occurrence of unanticipated events, except as required by law.

USE OF PROCEEDS

The net proceeds from the sale of the 3,800,000 shares that we are selling in this offering will be approximately $49,308,000, or approximately $56,809,200 if the underwriters exercise their over-allotment option in full.

We intend to use the net proceeds of this offering, together with the net proceeds we received from Norsk Hydro in March 2008 from its exercise of an option to purchase shares of our common stock, for the design, purchase, installation, qualification and testing of production tools for approximately 30 MW of rated production capacity, and for general corporate purposes. See "Certain Relationships and Related Party Transactions Transactions Involving Norsk Hydro AS."

In order to design, purchase, install, qualify and test the production tools required to achieve an additional approximately 30 MW of rated production capacity, we intend to apply the net proceeds of this offering to a number of items, including: (i) the purchase and installation of capital equipment; (ii) acquisitions and modifications of facilities, laboratory equipment, test equipment, and quality control equipment; (iii) the labor associated with the engineering, installation and qualification; and (iv) product certification and test procedures. We expect that net proceeds from any exercise of the underwriters' over-allotment option would be applied to the same purposes.

The foregoing information is an estimate based on our current business plan. We may find it necessary to shift funds reserved for one category of uses to another. For example, if our non-recurring engineering and other costs exceed current estimates due to increases in costs of materials or equipment, we may be forced to draw from funds budgeted for other purposes. In such cases, we may find it necessary or advisable to re-allocate portions of the net proceeds we receive from this offering, and we will have broad discretion in doing so. Investors will be relying on the judgment of management regarding the application of these net proceeds. Pending these uses, we intend to invest the net proceeds of the offering in short term, interest-bearing securities.

PRICE RANGE OF COMMON STOCK

Our common stock has been listed on the Nasdaq Global Market under the symbol "ASTI" since November 13, 2007, and on the Nasdaq Capital Market from August 10, 2006 until November 13, 2007. Prior to August 10, 2006, there was no public market for our common stock. The following table sets forth the range of high and low sales prices per share as reported on Nasdaq for the periods indicated.

	High	Low
Fiscal 2006		
Third Quarter (since August 10, 2006)	$ 3.50	$ 2.01
Fourth Quarter	$ 3.95	$ 2.09
Fiscal 2007		
First Quarter	$ 10.44	$ 2.41
Second Quarter	$ 11.34	$ 6.99
Third Quarter	$ 19.75	$ 6.50
Fourth Quarter	$ 28.35	$ 13.17
Fiscal 2008		
First Quarter	$ 27.95	$ 8.02
Second Quarter (through May 15, 2008)	$ 18.39	$ 14.25

The closing sales price of our common stock on the Nasdaq Global Market was $15.89 per share on May 15, 2008. As of May 2, 2008, there were approximately 52 record holders of our common stock, and we believe that there were approximately 10,469 beneficial owners of our common stock.

DIVIDEND POLICY

We have never paid, and it is our present intention for the foreseeable future not to pay, dividends on our common stock. The declaration and payment of dividends is subject to the discretion of our Board of Directors and depends on various factors, including our net income, financial conditions, cash requirements, future prospects, contractual restrictions and other factors deemed relevant by our Board of Directors.

CAPITALIZATION

The following table sets forth our:

Actual capitalization as of March 31, 2008; and

As adjusted capitalization as of March 31, 2008, after giving effect to our sale of 3,800,000 shares of common stock in this offering, assuming the underwriters do not exercise their over-allotment option, and after deducting the underwriting discounts and commissions and estimated offering expenses payable by us.

	March 31, 2008	
	Actual	**As Adjusted**
DEBT	$ 4,136,475	$ 4,136,475
STOCKHOLDERS' EQUITY		
Preferred stock, $0.0001 par value: 25,000,000 shares authorized: no shares issued and outstanding	$	$
Common stock, $0.0001 par value: 75,000,000 shares authorized: 14,049,352 shares issued and outstanding March 31, 2008 actual; 17,849,352 shares issued and outstanding as adjusted	1,405	1,785
Additional paid-in capital	90,879,145	140,186,765
Deficit accumulated during development stage	(14,290,256)	(14,290,256)
Total capitalization	$ 80,726,769	$ 130,034,769

You should read this table in conjunction with the sections of this prospectus captioned "Use of Proceeds," "Selected Historical Financial Data" and "Management's Discussion and Analysis of Financial Condition and Results of Operations," as well as the financial statements and related notes included elsewhere in this prospectus.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be diluted to the extent of the difference between the public offering price per share of our common stock and the as adjusted net tangible book value per share of our common stock upon completion of this offering. Historical net tangible book value per share is determined by dividing our total tangible assets (total assets less intangible assets), less total liabilities by the number of outstanding shares of our common stock. The historical net tangible book value of our common stock as of March 31, 2008 was approximately $76.5 million, or approximately $5.44 per share of common stock, based on the number of shares of common stock outstanding as of March 31, 2008.

Investors participating in this offering will incur immediate and substantial dilution. After giving effect to the sale of common stock offered by us in this offering at the public offering price of $14.00 per share, and after deducting the underwriting discounts and commissions and estimated offering costs payable by us, our as adjusted net tangible book value as of March 31, 2008 would have been approximately $125.8 million, or approximately $7.05 per share of common stock. This represents an immediate increase in as adjusted net tangible book value of $1.61 per share to existing common stockholders, and an immediate dilution of $6.95 per share to investors participating in this offering. The following table illustrates this per share dilution:

Public offering price per share		$ 14.00
Historical net tangible book value per share as of March 31, 2008	5.44	
Increase in historical net tangible book value per share attributable to investors participating in this offering	1.61	
As adjusted historical net tangible book value per share after this offering		7.05
Dilution per share to investors participating in this offering		$ 6.95

If the underwriters also exercise their option in full to purchase 570,000 additional shares of common stock in this offering, our as adjusted net tangible book value per share as of March 31, 2008 would have been $7.24 per share, the increase in our net tangible book value per share to existing stockholders would be $1.80 per share and the dilution to new investors participating in this offering would be $6.76 per share.

SELECTED HISTORICAL FINANCIAL DATA

The following table sets forth our selected financial data for the periods and at the dates indicated. The selected financial data for the fiscal years ended December 31, 2006 and December 31, 2007 and as of December 31, 2006 and December 31, 2007 have been derived from our audited financial statements included elsewhere in this prospectus. The selected financial data for the three months ended March 31, 2007 and March 31, 2008 and as of March 31, 2007 and March 31, 2008 have been derived from our unaudited financial statements included elsewhere in this prospectus.

The information presented below should be read in conjunction with "Use of Proceeds," "Capitalization," "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the financial statements and related notes included elsewhere in this prospectus. The historical results are not necessarily indicative of the results to be expected in future periods.

	Year Ended		Three Months Ended	
	Dec 31, 2006	Dec 31, 2007	Mar 31, 2007	Mar 31, 2008
	(dollars in thousands, except per share data)			
Statements of Operations Data:				
Research & Development Revenues	$	$ 1,003	$ 235	$ 305
Research & Development Expenses	(691)	(3,975)	(760)	(1,685)
General and Administrative Expenses	(2,684)	(4,954)	(994)	(1,331)
Loss from Operations	(3,375)	(7,926)	(1,519)	(2,711)
Interest Income (Expense), Net	(806)	1,423	146	312
Net Loss	$ (4,181)	$ (6,503)	$ (1,373)	$ (2,399)
Net Loss Per Share (Basic and Diluted)	$ (1.45)	$ (0.70)	$ (0.24)	$ (0.20)
Weighted Average Common Shares Outstanding (Basic and Diluted)	2,881,639	9,237,252	5,694,561	11,807,789
Other Financial Data:				
Net Cash Used in Operating Activities	$ 2,757	$ 4,294	$ 990	$ 1,608
Capital Expenditures	467	11,013	1,399	6,284

	As of		
	Dec 31, 2006	Dec 31, 2007	As of Mar 31, 2008
	(in thousands)		
Balance Sheet Data:			
Cash, cash equivalents and short term investments	$ 10,671	$ 37,701	$ 63,747
Property and equipment, net	91	1,651	14,505
Deposits on manufacturing equipment	370	9,720	2,986
Total assets	11,290	49,817	82,301
Current and long term liabilities	389	1,195	5,710
Total stockholders' equity	10,901	48,622	76,590

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion of our financial condition and results of operations should be read in conjunction with our financial statements and accompanying notes included elsewhere in this prospectus. This discussion and analysis contains statements of a forward-looking nature that involve known and unknown risks. Our actual results may differ materially from those anticipated in these forward-looking statements. The following discussion should be read in conjunction with the other parts of this prospectus, including "Risk Factors," "Forward-Looking Statements" and the financial statements and related notes included elsewhere in this prospectus.

Overview

We are a development stage company formed to commercialize flexible PV modules using proprietary technology. For the year ended December 31, 2007 and the three months ended March 31, 2008, we generated approximately $1.0 million and $305,000, respectively, in revenues, none of which came from our planned principal operations to commercialize flexible PV modules. As of March 31, 2008, we had an accumulated deficit of approximately $14.3 million. Under our current business plan, we expect losses to continue through at least 2009. To date, we have financed our operations primarily through public and private equity financings.

Our path to commercialization is defined by a highly disciplined, staged progression based upon the achievement of key milestones. We completed construction of a 1.5 MW production line on schedule in December 2007 after having consistently achieved PV cell conversion efficiencies of approximately 10% to 12%, and PV module conversion efficiencies of approximately 6% to 8%, and as high as 9.6%, in a pre-production prototyping and test facility that we have operated since the fourth quarter of 2006. Conversion efficiency is the percentage of energy from absorbed light that a device is able to convert into electrical energy. Over time and with further refinement of our existing processes, we believe that our PV modules should be able to consistently achieve efficiencies of 10% to 12%. We are now testing and qualifying our 1.5 MW production line in anticipation of commencing limited commercial production during the second quarter of 2008 with an emphasis on module testing and further optimization of production yield. Our production line incorporates into an integrated process each of the discrete manufacturing steps that have been previously tested in our pre-production prototyping and test facility.

Our manufacturing expansion plan entails the design, installation, qualification, testing and operation of additional production tools to increase our rated production capacity, and contemplates the addition of approximately 30 MW of rated capacity by the end of 2009, another approximately 30 MW of rated capacity by the end of 2010 and another approximately 50 MW of rated capacity by the end of 2011. We therefore expect to have approximately 110 MW of rated production capacity in place by the end of 2011. Rated production capacity refers to our expected level of annual production upon optimizing our production process and is based on assumed production yields and module efficiencies. The actual production levels that we are able to realize at any point during our planned expansion will depend on a variety of factors, including our ability to optimize our production process to achieve targeted production yields and module efficiencies. See Risk Factors including "Risk Factors We have a limited history of operations, have not generated any revenue from operations and have not commenced commercial production of our PV modules."

1.5 MW Production Line Status

The major modifications to our building and facilities in Littleton, Colorado to accommodate the new 1.5 MW production line were completed, and all the requisite production tools and support

equipment were delivered and installed, by the fourth quarter 2007. During the first quarter of 2008, we qualified production tools for the following manufacturing processes:

Manufacturing Process	Manufacturing Tool
Thin-film vacuum coating of molybdenum back contact	Roll-to-roll tool for sputtering
Thin-film vacuum coating of copper, indium, gallium, selenium	Roll-to-roll tool for thermal evaporation
Chemical spray coating of deionized water and cadmium sulfide	Roll-to-roll tool for chemical treatment
Thin-film vacuum coating of transparent conductive oxide (TCO)	Roll-to-roll tool for sputtering
Laser patterning and ink printing of modules	Roll-to-roll monolithic integration tool

The following diagram is a general illustration of our manufacturing process:

In March 2008, we achieved IOC of our 1.5 MW production line as an end-to-end integrated process. Early IOC production trials resulted in average thin-film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of up to approximately 7.1%. During the second quarter of 2008, we intend to commence limited commercial production with an emphasis on manufacturing optimization to achieve desired initial production yields and module efficiencies of 7% to 8%. In order to achieve these objectives, we must successfully transition the manufacturing processes and performance levels achieved with our prototyping tools to the 1.5 MW production line.

Our principal activities during 2008 are expected to be to demonstrate desired production yields, module efficiencies and other targets on a repeatable basis, and to produce product for the following purposes: internal product development; testing and qualification; and external product testing to gain UL, IEC and TÜV certifications, one or more of which is necessary for some product and customer applications. Other product uses include demonstrations, joint product development, limited sales and further market development with new strategic partners and customers. Successful accomplishment of our objectives in these areas is necessary to support the commencement of full-scale manufacturing at the 1.5 MW level and to make progress consistent with our current commercialization and manufacturing expansion plan.

Commercialization and Manufacturing Expansion Plan

We intend to be the first company to manufacture large, roll-format, PV modules in commercial quantities that use CIGS on a flexible, plastic substrate. Our manufacturing expansion plan entails the design, installation, qualification, testing and operation of additional production tools to increase our rated production capacity. We intend to incrementally expand our aggregate production capacity to 110 MW by attaining the following milestones within the time frames indicated:

Second quarter of 2008: commence limited commercial production on 1.5 MW production line.

Second and third quarters of 2008: begin procuring production tools for the first 30 MW of incremental rated capacity.

Third and fourth quarters of 2008: begin certification and qualification of products through UL, IEC and TÜV.

Second quarter of 2009: complete certification of products from 1.5 MW production line.

Third quarter of 2009: begin procuring production tools for the second 30 MW of incremental rated capacity.

Fourth quarter of 2009: complete qualification of production tools for the first 30 MW of incremental rated capacity and commence production at 30 MW of aggregate rated capacity.

Third quarter of 2010: begin procuring production tools for the final 50 MW of incremental rated capacity.

Fourth quarter of 2010: complete qualification of production tools for the second 30 MW of incremental rated capacity and commence production at 60 MW of aggregate rated capacity.

Fourth quarter of 2011: complete qualification of production tools for the final 50 MW of incremental rated capacity and commence production at 110 MW of aggregate rated capacity.

Although we currently plan to expand our production capacity in accordance with the timeline above, the actual timing and amount of production capacity that we install may significantly deviate from the above plan due to market conditions, availability of financing, timeliness of delivery of production tools, product performance and other factors described in this prospectus. See "Significant Trends, Uncertainties and Challenges" below, and Risk Factors including "Risk Factors We have a limited history of operations, have not generated any revenue from operations and have not commenced commercial production of our PV modules."

We do not expect that minor delays in product certifications would significantly affect our ability to continue developing product applications with our customers. However, delays that extend significantly beyond mid-2009 likely would impact our ability to develop demand for our PV modules, and would affect our planned sales and results of operations in 2010, when we expect to have commenced production using our planned production tools for approximately 30 MW of rated capacity.

Using our 1.5 MW production line as a model, we have commenced engineering and development of our planned production tools for approximately 30 MW of rated capacity. We plan to procure these production tools by the end of the third quarter of 2008, and to complete installation of the production tools by the end of the second quarter of 2009. Allowing six months to qualify the tools and achieve IOC, we plan to commence production at 30 MW of rated capacity by the end of 2009. In order to qualify approximately 30 MW of rated capacity by the end of 2009, we intend to purchase and install production tools that will process one-third meter wide plastic rolls identical to those used in our existing 1.5 MW production line. Significant delays in achieving desired production yields, module efficiencies, or other targets on the 1.5 MW production line and/or delays in the delivery, installation and qualification of additional production tools may impact our real and projected product sales in 2010.

We expect that the production tools used for the next approximately 80 MW of rated capacity and for future capacity expansions will be engineered to process larger one meter wide rolls, and we have initiated engineering and development of production tools to support our planned expansion to 110 MW of rated capacity. Successfully transitioning to one meter wide rolls should significantly increase our throughput, thereby reducing the number of manufacturing tools and, hence, the amount of capital expenditures required for equipment and facilities. Generally speaking, we believe that all other process variables, such as speed, thickness and composition, should remain unchanged. Based upon discussions with our equipment suppliers, we have identified deposition of the CIGS layer in the one meter wide format as the most challenging aspect of transitioning to one meter wide rolls; consequently, we have initiated the development of a one meter wide prototype CIGS production tool to enable us to begin evaluating and testing one meter wide area deposition sources and process control systems. This prototype production tool is scheduled for delivery in the third quarter of 2008, which under our current schedule allows for nine months of testing and evaluation prior to committing the capital in 2009 to procure the one meter format production tools to support further expansion to approximately 110 MW of rated capacity. In addition, we anticipate that our planned expansion to approximately 110 MW of total rated capacity will require additional capital. See "Risk Factors The net proceeds from this offering may be insufficient to fund our planned expansion to approximately 30 MW of rated capacity; also, our planned expansion to approximately 110 MW of rated capacity will require additional capital which we may not be able to obtain on favorable terms, if at all, or without dilution to our stockholders."

In February 2008, we acquired an approximately 120,000 square foot manufacturing and office facility in Thornton, Colorado, for approximately $5.5 million. The purchase was financed in part by a promissory note, deed of trust and construction loan agreement with CHFA, which provide us borrowing availability of up to $7.5 million for the building and building improvements. We paid approximately $1.3 million in cash and were advanced approximately $4.2 million from CHFA to fund the initial acquisition of the property. The construction loan terms require payment of interest only at 6.6% on the drawn principal amount until January 1, 2009, at which time the construction loan will be refinanced by a permanent loan. The permanent loan will have an interest rate of 6.6% and the principal will be amortized over a period of approximately 19 years and 1 month consistent with a maturity date 20 years after the incurrence of the construction loan on February 8, 2008. The terms of the permanent loan are specified in a CHFA Construction and Permanent Loan Commitment dated January 16, 2008. We expect to incur in 2008 and 2009 approximately $5 million to $7 million in connection with building improvements, of which $3.3 million will be funded through advancements on the construction loan with CHFA.

Capital Equipment Expenditures and Manufacturing Costs

Since our formation in October 2005, most of our cash outlays have gone toward the investment in capital equipment necessary to develop our manufacturing capabilities for producing the commercial products we envision. We expect this trend to continue into the foreseeable future as we expand to approximately 110 MW of rated capacity by the end of 2011. We will require additional capital and additional facilities to achieve our manufacturing expansion plans. If we are unable to secure the necessary capital or to manage the disbursement of capital taking into consideration any unforeseen factors, such as cost increases from our equipment suppliers and the potential continued devaluation of the U.S. dollar against foreign currencies, our ability to expand our manufacturing capacity as planned, as well as our financial performance and results of operations, may be adversely affected.

Our major equipment suppliers are located in Japan, the United Kingdom and Germany. The recent downward trend of the U.S. dollar against the yen, the British pound and the euro has resulted in an increase in our estimated and projected capital expenditure requirements. Although the devaluation of the dollar directly affects our capital outlays, it generally strengthens the value of our products relative to those of many of our foreign competitors to the extent that our production costs

are incurred in U.S. dollars. We currently expect the capital expenditures needed to support the first 30 MW of rated capacity to be approximately $80 million to $85 million for property, plant and equipment and approximately $8 million for installation, qualification and other associated pre-operating expenses. We intend to finance these expenditures with the net proceeds from this offering and the proceeds we received from Norsk Hydro in March 2008 from its exercise of an option to purchase shares of our common stock and Class B warrants, as described in "Liquidity and Capital Resources" below. In order to install the next 80 MW of rated capacity, we expect that we will require another approximately $170 million to $180 million for property, plant and equipment and approximately $15 million for installation, qualification and other associated pre-operating expenses. Assuming optimized run rate production yields and module efficiencies, we expect our PV module manufacturing cash costs to be approximately $1.00 per watt when operating at 30 MW of rated capacity and approximately $0.90 per watt when operating at 110 MW of rated capacity.

To manage the uncertainties related to the procurement of capital equipment, we have continued to work closely with our equipment suppliers to complete the engineering of our new tools and refine the estimates of our planned capital outlays. The production tool costs are subject to change until we place firm procurement orders with our suppliers, which we expect will occur beginning the third quarter of 2008. To manage the fluctuations of foreign exchange rates, we procure equipment from Japan under contract terms based upon U.S. dollars at the time of contract. For equipment procured in Europe, we intend to negotiate with our suppliers to achieve similar terms. Although we do not currently engage in any foreign currency hedging activities, we intend to consider the merits of using financial instruments to hedge against such uncertainties in the future.

Significant Trends, Uncertainties and Challenges

We believe that the significant trends, uncertainties and challenges that directly or indirectly affect our financial performance and results of operations are:

- Our ability to achieve desired production yields, module efficiencies and other targets, and to obtain necessary or desired certifications for our PV modules;
- Our ability to expand production in accordance with our plans set forth above under "Commercialization and Manufacturing Expansion Plan" to add approximately 30 MW of rated capacity by the end of 2009, another approximately 30 MW of rated capacity by the end of 2010 and another approximately 50 MW of rated capacity by the end of 2011, and to achieve certifications of our planned PV modules;
- Our ability to achieve projected operational performance and cost metrics;
- Our ability to consummate strategic relationships with key partners, including OEMs, system integrators and distributors who deal directly with end-users in the BIPV, EIPV and commodity solar panel markets;
- The effect that currency fluctuations may have on our capital equipment purchases, manufacturing costs and the price of our planned PV modules; and
- Our ability to manage the planned expansion of our manufacturing facilities, operations and personnel.

Other trends, uncertainties and challenges may exist and are discussed elsewhere in this prospectus, including under the heading "Risk Factors."

Critical Accounting Policies and Estimates

The preparation of our financial statements requires us to make certain estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and the related

disclosures. A summary of accounting policies that have been applied to the financial statements presented can be found in the notes thereto. We consider certain of these accounting policies to be critical as they are both important to the portrayal of our financial condition and results of operations and require judgments on the part of management about matters that are uncertain. We have identified the following accounting policies that are important to the presentation of the financial information:

Basis of Presentation: Our activities to date have substantially consisted of raising capital, research and development, and the development of a 1.5 MW production line. Revenues to date have been generated from our government research and development (R&D) contracts and have not been significant. Our planned principal operations to commercialize flexible PV modules have not yet commenced. Accordingly, we are considered to be in the development stage, as defined in Statement of Financial Accounting Standards No. 7 (SFAS No. 7), "*Accounting and Reporting by Development Stage Enterprises*."

Unaudited Information: The interim financial information as of March 31, 2008 and for the three months ended March 31, 2008 and March 31, 2007 and the period from inception (October 18, 2005) through March 31, 2008 that accompanies this prospectus was taken from our books and records without audit. However, in the opinion of our management, such information includes all adjustments (consisting only of results of normal recurring accruals) that are necessary to properly reflect our financial position as of March 31, 2008 and March 31, 2007 and the results of operations for the three months ended March 31, 2008 and the period from inception (October 18, 2005) through March 31, 2008 so that the financial statements are not misleading.

Short Term Investments: Our short term investments, which are classified as available-for-sale securities, are invested in high-grade variable rate demand notes, which have a final maturity date of up to 30 years but whose interest rates are reset at varying intervals typically between 1 and 7 days. Unlike auction rate securities, variable rate demand notes can be readily liquidated at any interest rate reset date, either by putting them back to the original issuer or by putting them to a third-party re-marketer as generally provided in the original prospectus. To date, we have always been able to redeem our holdings of these securities in accordance with their terms, and we believe that the risk of non-redemption is minimal. Consequently, these securities are available for use to support the current cash needs of our operations, and in accordance with Accounting Research Bulletin 43, they are classified as short term investments.

Cash Equivalents: We consider all highly liquid debt securities purchased with an original maturity of three months or less to be cash equivalents. We maintain cash balances which may exceed federally insured limits. We do not believe that this results in any significant credit risk.

Revenue Recognition: Revenue to date is from our government research and development contracts under terms that are cost plus fee or firm fixed price. Revenue from cost plus fee contracts is recognized as costs are incurred on the basis of direct costs plus allowable indirect costs and an allocable portion of the firm fixed fee. Revenue from firm fixed price contracts is recognized under the percentage-of-completion method of accounting, with costs and estimated profits included in contract revenue as work is performed. If actual and estimated costs to complete a contract indicate a loss, provision is made currently for the loss anticipated on the contract.

Patents: To the extent we obtain or are awarded patents, patent costs will be amortized on a straight line basis over the legal life, or over their estimated useful lives, whichever is shorter.

Property and Equipment: Property and equipment are recorded at the original cost to us. Assets are being depreciated over estimated useful lives of one to ten years using the straight-line method. Leasehold improvements are depreciated over the shorter of the remainder of the lease's term or the life of the improvements. Upon retirement or disposal, the cost of the asset disposed of and the related

accumulated depreciation are removed from the accounts and any gain or loss is reflected in income. Expenditures for repairs and maintenance are expensed as incurred.

Risks and Uncertainties: Our operations are subject to certain risks and uncertainties, including those associated with: the ability to meet obligations; continuing losses; fluctuation in operating results; funding expansions; strategic alliances; financing arrangement terms that may restrict operations; regulatory issues; and competition. Additionally, U.S. government contracts may be terminated prior to completion of full funding by the U.S. government.

Net Loss per Common Share: Statement of Financial Accounting Standards No. 128, "*Earnings Per Share,*" provides for the calculation of "Basic" and "Diluted" earnings per share. Basic earnings per share include no dilution and are computed by dividing income available to common stockholders by the weighted-average number of shares outstanding during the period. Diluted earnings per share reflect the potential of securities that could share in the earnings of the Company, similar to fully diluted earnings per share. Common stock equivalents consisting of Class B warrants, IPO Warrants (see "Description of Securities IPO Warrants") and stock options have been omitted from loss per share because they are anti-dilutive.

Research and Development Costs: Research and development costs are expensed as incurred.

Income Taxes: In July 2006, the FASB (Financial Accounting Standards Board) issued FASB Interpretation (FIN) No. 48, "*Accounting for Uncertainty in Income Taxes*." We adopted the provisions of FIN No. 48 on January 1, 2007. Deferred income taxes are provided using the liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry-forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the reported amounts of assets and liabilities and their tax bases. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of the changes in tax laws and rates from the date of enactment.

As defined, FIN 48 seeks to reduce the diversity in practice associated with certain aspects of the recognition and measurement related to accounting for income taxes. We are subject to the provisions of FIN 48 as of January 1, 2007, and have analyzed filing positions in all of the federal and state jurisdictions where it is required to file income tax returns, as well as all open tax years in these jurisdictions. We have identified our federal tax return and our Colorado tax return as "major" tax jurisdictions, as defined. The periods subject to examination for our federal and state tax returns are tax years 2005 through 2006. We believe that our income tax filing positions and deductions will be sustained on audit and do not anticipate any adjustments that will result in a material adverse effect on our financial condition, results of operations or cash flow. Therefore, no reserves for uncertain income tax positions have been recorded pursuant to FIN 48. In addition, we did not record a cumulative effect adjustment related to the adoption of FIN 48.

Stock-based Compensation: Our accounts for share-based payments under the provisions of Statement of Financial Accounting Standards No. 123 (revised 2004), "*Share-Based Payment,*" (SFAS 123(R)) which requires the measurement and recognition of compensation expense for all share-based payment awards made to employees, officers and directors, and consultants, including employee stock options based on estimated fair values. SFAS 123(R) requires companies to estimate the fair value of share-based payment awards on the date of grant using an option-pricing model. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the requisite service period in our Statements of Operations. Stock-based compensation is based on awards ultimately expected to vest and is reduced for estimated forfeitures. SFAS 123(R) requires forfeitures to be estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates.

For purposes of determining estimated fair value of share-based payment awards on the date of grant under SFAS 123(R), we used the Black-Scholes option-pricing model (Black-Scholes Model). The Black-Scholes Model requires the input of highly subjective assumptions. Because our employee stock options may have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models may not provide a reliable single measure of the fair value of our employee stock options. Management will continue to assess the assumptions and methodologies used to calculate estimated fair value of share-based compensation. Circumstances may change and additional data may become available over time, which result in changes to these assumptions and methodologies, which could materially impact our fair value determination.

The guidance in SFAS 123(R) is relatively new, and best practices are not well established. The application of these principles may be subject to further interpretation and refinement over time. There are significant differences among option valuation models, and this may result in a lack of comparability with other companies that use different models, methods and assumptions. If factors change and we employ different assumptions in the application of SFAS 123(R) in future periods, or if we decide to use a different valuation model, the compensation expense that we record in the future under SFAS 123(R) may differ significantly from what we have recorded in the current period and could materially affect our loss from operations, net loss and net loss per share.

Recent accounting pronouncements: Effective January 1, 2008, we adopted SFAS No. 157, "Fair Value Measurements" (SFAS 157). In February 2008, the FASB issued FASB Staff Position No. FAS 157-2, "Effective Date of FASB Statement No. 157", which provides a one year deferral of the effective date of SFAS 157 for non-financial assets and non-financial liabilities, except those that are recognized or disclosed in the financial statements at fair value at least annually. Therefore, we have adopted the provisions of SFAS 157 with respect to its financial assets and liabilities only. SFAS 157 defines fair value, establishes a framework for measuring fair value under generally accepted accounting principles and enhances disclosures about fair value measurements. Fair value is defined under SFAS 157 as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. Valuation techniques used to measure fair value under SFAS 157 must maximize the use of observable inputs and minimize the use of unobservable inputs. The standard describes a fair value hierarchy based on three levels of inputs, of which the first two are considered observable and the last unobservable, that may be used to measure fair value which are the following:

Level 1 Quoted prices in active markets for identical assets or liabilities.

Level 2 Inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The adoption of this statement did not have a material impact on our results of operations and financial condition.

Effective January 1, 2008, we adopted SFAS No. 159 "The Fair Value Option for Financial Assets and Financial Liabilities" (SFAS 159). SFAS 159 allows an entity the irrevocable option to elect fair value for the initial and subsequent measurement for specified financial assets and liabilities on a contract-by-contract basis. We did not elect to adopt the fair value option under SFAS 159.

Results of Operations

Comparison of the Three Months Ended March 31, 2008 and 2007

Certain reclassifications have been made to the 2007 financial information to conform to the 2008 presentation. Such reclassifications had no effect on net loss and are related to reclassifying costs between R&D expenses and General and Administrative expenses in the Statement of Operations for the three months ended March 31, 2007. Our activities to date have substantially consisted of raising capital, business and product development, research and development and the development of our 1.5 MW production line.

Research and Development Contract Revenues. Our R&D contract revenues were $304,898 and $235,181 for the three months ended March 31, 2008 and 2007, respectively. A majority of our revenues during the three months ended March 31, 2008 and 2007 were earned on our government R&D contracts novated January 1, 2007 from ITN and new government R&D contracts awarded to us in 2007.

Research and Development Expenses. R&D expenses were $1,685,372 for the three months ended March 31, 2008 compared to $759,894 for the three months ended March 31, 2007, an increase of $925,478. The increase is comprised of $807,260 related to personnel, materials and facilities required to optimize our manufacturing processes in advance of commencing full-scale production on our 1.5 MW production line and $118,218 of direct costs and related overhead on our government R&D contracts.

General and Administrative Expenses. General and administrative expenses (G&A) were $1,330,750 for the three months ended March 31, 2008 compared to $993,990 for the three months ended March 31, 2007, an increase of $336,760. The increase of $336,760 is comprised of two components, an increase in corporate G&A expenses of $446,719 and a decrease in non-cash stock-based compensation expense of $109,959. The increase in corporate G&A expenses corresponds with our increase in headcount and increases in corporate activity such as legal fees, SEC reporting, stock and corporate registration fees, travel and insurance during the three months ended March 31, 2008 as compared to the three months ended March 31, 2007. Non-cash stock-based compensation for the three months ended March 31, 2008 and 2007 was $171,393 and $281,352, respectively. The decrease in stock compensation expense for the three months ended March 31, 2008 is primarily due to the requirements of SFAS 123(R) and EITF 96-18 to generally measure stock-based compensation to outside providers as vesting occurs and for unvested shares at the balance sheet date. Because our stock price as of March 31, 2008 was significantly lower than as of December 31, 2007, the previous measurement date, this resulted in a decreased fair value calculation related to stock-based payments to outside providers.

Interest Expense. Interest expense was $39,514 for the three months ended March 31, 2008 compared to $63 for the three months ended March 31, 2007, an increase of $39,451. Interest expense in 2008 related to the construction loan we entered into with the purchase of real property in February 2008.

Interest Income. Interest income was $352,047 for the three months ended March 31, 2008 compared to $145,298 for the three months ended March 31, 2007, an increase of $206,749. Interest income represents interest on cash and short term investments. Our short term investments, which are classified as available-for-sale securities, are invested in high-grade variable rate demand notes, which have a final maturity date of up to 30 years but whose interest rates are reset at varying intervals typically between 1 and 7 days. The increase in interest income relates primarily to higher cash balances in the three month period ended March 31, 2008 as compared to the same period in 2007.

Net Loss. Our net loss was $2,398,691 for the three months ended March 31, 2008 compared to a net loss of $1,373,468 for the three months ended March 31, 2007, an increase in net loss of $1,025,223. This increase can be summarized in variances in significant account activity as follows:

	Increase (decrease) to net loss for the three months ended March 31, 2007
R&D Contract Revenues	$ (69,717)
R&D Expenses	
Manufacturing R&D	807,260
Government R&D	118,218
G&A Expenses	
Corporate G&A	446,719
Non-Cash Stock-Based Compensation	(109,959)
Interest Expense	39,451
Interest Income	(206,749)
Increase to Net Loss	$ 1,025,223

Comparison of the Years Ended December 31, 2007 and 2006

Certain reclassifications have been made to the 2006 financial information to conform to the 2007 presentation. Such reclassifications had no effect on net loss and are related to reclassifying costs between R&D expenses and general and administrative expenses in the Statement of Operations for the year ended December 31, 2006. Our activities to date have substantially consisted of raising capital, business and product development, research and development and the development of our 1.5 MW production line.

Research and Development Contract Revenues. Our R&D contract revenues were $1,002,674 for the year ended December 31, 2007. There were no R&D contract revenues for the year ended December 31, 2006. A majority of our revenues during the year ended December 31, 2007 were revenues earned on our government R&D contracts novated January 1, 2007 from ITN and new government R&D contracts awarded to us in 2007.

Research and Development Expenses. R&D expenses were $3,975,079 for the year ended December 31, 2007 compared to $690,964 for the year ended December 31, 2006, an increase of $3,284,115. The increase is comprised of $2,562,213 related to personnel, materials and facilities required to optimize our manufacturing processes in advance of commencing full-scale production on our 1.5 MW production line and $721,902 of direct costs and related overhead on our government R&D contracts that began on January 1, 2007.

General and Administrative Expenses. General and administrative expenses (G&A) were $4,953,910 for the year ended December 31, 2007 compared to $2,684,340 for the year ended December 31, 2006, an increase of $2,269,570. The increase of $2,269,570 is comprised of two components, an increase in corporate G&A expenses of $883,635 and an increase in non-cash stock-based compensation expense of $1,385,935. The increase in corporate G&A expenses corresponds with our increase in headcount and increases in corporate activity such as legal, SEC reporting, stock and corporate registration fees, travel and insurance during the year ended December 31, 2007 as compared to the year ended December 31, 2006. Non-cash stock-based compensation for the years ended December 31, 2007 and 2006 was $1,734,879 and $348,944, respectively. The significant increase in stock compensation expense for the year ended December 31, 2007 is primarily due to the requirements of SFAS 123(R) and EITF 96-18 to generally measure stock-based compensation to

non-employees as vesting occurs and for unvested shares at the balance sheet date. Since our stock price as of December 31, 2007 was significantly higher than as of December 31, 2006, this requirement resulted in an increased fair value calculation related to stock-based payments to non-employees. Additional grants of our stock options during 2007 also contributed to the increase.

Interest Expense. Interest expense was $424 for the year ended December 31, 2007 compared to $1,080,691 for the year ended December 31, 2006, a decrease of $1,080,267. Interest expense in 2006 resulted from interest on the bridge loan notes and related bridge rights and financing transactions of which $800,000 was non-cash related to the valuation and subsequent amortization of the bridge loan rights. In July 2006, the bridge loan was repaid in full with the proceeds from our initial public offering (IPO).

Interest Income. Interest income was $1,423,320 for the year ended December 31, 2007 compared to $275,083 for the year ended December 31, 2006, an increase of $1,148,237. Interest income represents interest on cash and short term investments. Our short term investments, which are classified as available-for-sale securities, are invested in high-grade variable rate demand notes, which have a final maturity date of up to 30 years but whose interest rates are reset at varying intervals typically between 1 and 7 days.

Net Loss. Our net loss was $6,503,419 for the year ended December 31, 2007 compared to a net loss of $4,180,912 for the year ended December 31, 2006, an increase in net loss of $2,322,507. This increase can be summarized in variances in significant account activity as follows:

	Increase (decrease) to net loss for the year ended December 31, 2007
R&D Contract Revenues	$ (1,002,674)
R&D Expenses	
Manufacturing R&D	2,562,213
Government R&D	721,902
G&A Expenses	
Corporate G&A	883,635
Non-Cash Stock-Based Compensation	1,385,935
Interest Expense	(1,080,267)
Interest Income	(1,148,237)
Increase to Net Loss	$ 2,322,507

Liquidity and Capital Resources

On July 10, 2006, we completed our IPO of 3,000,000 units; each unit consisted of one share of our common stock, one redeemable Class A warrant with an expiration date of July 10, 2011 and an exercise price of $6.60 per share, and two non-redeemable Class B warrants, each with an expiration date of July 10, 2011 and an exercise price of $11.00 per share. The initial public offering price was $5.50 per unit. Our net proceeds from the offering were approximately $14 million.

In the fiscal year ended December 31, 2007 and in the three months ended March 31, 2008, we completed the following financing transactions:

On March 13, 2007, we completed a private placement of securities whereby Norsk Hydro purchased 1,600,000 shares of our common stock for an aggregate purchase price of approximately $9.2 million, for a 23% interest in us. In connection with the private placement, Norsk Hydro was granted two options, which expire on June 15, 2009, to purchase additional shares and warrants.

On May 24, 2007, we publicly announced our intention to redeem our outstanding Class A warrants at $0.25 per warrant. The exercise period ended June 22, 2007. During the exercise period, 3,098,382 of our Class A warrants (94.2% of the total outstanding) were exercised for an equal number of shares of common stock, and we received approximately $20.5 million in proceeds. All outstanding Class A warrants that were not exercised before June 22, 2007 were or may be redeemed by us at $0.25 per warrant for a total cost of approximately $48,000. As of March 31, 2008, 9,090 Class A warrants had not yet been surrendered to our transfer agent for redemption at $0.25 per warrant.

On August 16, 2007, Norsk Hydro acquired an additional 934,462 restricted shares of our common stock and 1,965,690 Class B warrants upon exercise of the first option we had granted to Norsk Hydro on March 13, 2007. Gross proceeds to us were approximately $10.5 million, and reflected per share and per warrant purchase prices equal to the average of the closing bids of each security, as reported by Nasdaq, for the five consecutive trading days preceding exercise. In March 2008, Norsk Hydro acquired an additional 2,341,897 restricted shares of our common stock and 1,689,905 Class B warrants upon exercise of the second option we had granted to Norsk Hydro on March 13, 2007. Gross proceeds to us from this exercise were approximate $28.4 million, and reflected per share and per warrant purchase prices equal to the average of the closing bids of each security, as reported by Nasdaq, for the five consecutive trading days preceding exercise. Immediately after this exercise, Norsk Hydro held approximately 35% of our outstanding common stock and Class B warrants. Until June 15, 2009, the second option entitles Norsk Hydro to purchase from us additional restricted shares of common stock and Class B warrants to maintain its ownership of up to 35% of our issued and outstanding common stock and Class B warrants.

In June and September 2007, a total of 11,000 Class B public warrants were exercised resulting in proceeds to us of $121,000. In January 2008, 96,800 additional Class B warrants were exercised with proceeds to us of approximately $1,065,000.

In September, October and November 2007, warrants that had been issued to the representative of the underwriters in our IPO were exercised resulting in the issuance of 300,000 shares of common stock and 300,000 Class B warrants for total proceeds to us of approximately $2.0 million. Additional representative warrants were exercised in January 2008 resulting in the issuance of 75,000 shares of common stock and 75,000 Class B warrants for total proceeds to us of approximately $495,000.

In February 2008, we acquired an approximately 120,000 square foot manufacturing and office facility in Thornton, Colorado, for approximately $5.5 million. The purchase was financed in part by a promissory note, deed of trust and construction loan agreement with CHFA, which provide us borrowing availability of up to $7.5 million for the building and building improvements. We paid approximately $1.3 million in cash and were advanced approximately $4.2 million from CHFA to fund the initial acquisition of the property. The construction loan terms require payement of interest only at 6.6% on the drawn principal amount until January 1, 2009, at which time the construction loan will be refinanced by a permanent loan. The permanent loan will have an interest rate of 6.6% and the principal will be amortized over a period of approximately 19 years and 1 month consistent with a maturity date 20 years after the incurrence of the construction loan on February 8, 2008. The terms of the permanent loan are specified in a CHFA Construction and Permanent Loan Commitment dated January 16, 2008. We expect to incur in 2008 and 2009 approximately $5 million to $7 million in connection with building improvements, of which $3.3 million will be funded through advancements on the construction loan with CHFA.

In January 2007, approximately $3.5 million of existing government-funded R&D contracts were novated from ITN to us together with the transfer of related personnel. The transferred contracts had

remaining future revenues of approximately $1.6 million. During 2007, we were awarded approximately $1.7 million of additional contracts under new R&D government-funded contract awards or modifications to existing R&D contracts. As of March 31, 2008, we had a backlog of approximately $2.1 million in revenues on our existing R&D contracts, which revenues are expected to be recognized during the contracts' periods of performance in 2008 and 2009.

For the year ended December 31, 2007, our cash used in operations was approximately $4.3 million compared to approximately $2.8 million for the year ended December 31, 2006. For the three months ended March 31, 2008, our cash used in operations was approximately $1.6 million compared to approximately $1.0 million for the three months ended March 31, 2007. For the three months ended March 31, 2008, approximately $6.3 million was expended in capital for our 1.5 MW production line and facility modifications, research and development equipment, and acquisition of the Thornton, Colorado manufacturing and office building for our planned manufacturing expansion. Approximately $4.2 million of our Thornton, Colorado manufacturing and office building was financed through a loan with CHFA. As of March 31, 2008, we had approximately $63.7 million in cash and investments, approximately $760,000 of which will be used for final progress payments to our equipment suppliers on our 1.5 MW production line and approximately $1.8 million of which is committed for manufacturing research and development tools in conjunction with production tools to support approximately 30 MW of incremental rated production capacity.

During the three months ended March 31, 2008, the use of cash for operational expenses averaged approximately $533,000 per month and related to pre-manufacturing activities, research and technology development, business development and general corporate expenses. We expect these operational expenses to increase during 2008 as we commence commercial production and increase the size of our workforce. Average monthly operational expense for the first three months of 2008 of approximately $533,000 is net of average monthly R&D revenues from our government contracts of approximately $102,000 and average monthly interest income of approximately $117,000. A significant component of our first quarter costs related to the ongoing qualification of our 1.5 MW line and continuing corporate costs related to building the required infrastructure to support our 1.5 MW manufacturing operations and expansion plans. We anticipate that our operational expenditures will continue to increase throughout 2008 and 2009 due to the planned hiring of additional personnel to help our 1.5 MW production line reach its operating potential and in connection with our planned expansion of manufacturing capacity. As of April 23, 2008, we had 35 full-time employees of which 18 were manufacturing personnel. We plan to increase our staff during 2008 to approximately 50 to 60 people, principally in manufacturing, business development and sales and marketing.

We have acquired all of the capital equipment required for the 1.5 MW production line and expect to make final payments in the second quarter of 2008. The capital outlays shown below represent

estimated and actual costs in connection with our 1.5 MW production line and production facility modifications:

Stage of Development	Completion	Estimated Future Capital Outlay	Actual Capital Outlay
Completion of engineering specifications	3rd QTR 2006	$	$ 220,000
Facility and equipment construction:			
Progress payments	4th QTR 2006		370,000
Progress payments	1st QTR 2007		1,400,000
Progress payments	2nd QTR 2007		2,300,000
Progress payments	3rd QTR 2007		2,400,000
Progress and final payments	4th QTR 2007		4,200,000
Progress and final payments	1st QTR 2008		350,000
Progress and final payments	2nd QTR 2008 (est)	760,000	
Qualification and IOC	1st QTR 2008		
Limited production capability	2nd QTR 2008 (est)		
Total		$ 760,000	$ 11,240,000

We expect to commence limited commercial production on our 1.5 MW production line in the second quarter of 2008. We do not expect that our sales revenue from the 1.5 MW production line will be sufficient to support our operations and cash requirements, and it is unlikely that our sales revenue will support our operating cash requirements unless we achieve actual production capacity of at least 30 MW per year. We intend to use our existing cash to build our operational infrastructure and to begin development of manufacturing capacity necessary to produce PV modules for sale into our target markets. We expect our current cash balance to be sufficient to cover our operational expenditures through 2009 based on currently known factors, although we will need to raise capital in 2008 in order to purchase the production tools necessary to achieve approximately 30 MW of rated capacity by the end of 2009.

In February 2008, we acquired an approximately 120,000 square foot manufacturing and office facility in Thornton, Colorado, for approximately $5.5 million. The purchase was financed in part by a promissory note, deed of trust and construction loan agreement with CHFA, which provide us borrowing availability of up to $7.5 million for building and building improvements. The construction loan terms require payment of interest only at 6.6% on the drawn principal balance until January 1, 2009, at which time the construction loan will be refinanced by a pre-committed permanent loan. The permanent loan will have an interest rate of 6.6% and the principal will be amortized over a period of approximately 19 years and 1 month consistent with a maturity date 20 years after the incurrence of the construction loan on February 1, 2008. If we prepay the construction loan, or if we prepay the permanent loan during the first seven years of the permanent loan, we will be subject to a "yield maintenance" prepayment penalty. Further, pursuant to certain negative covenants contained in the deed of trust associated with the construction loan, until the construction loan is repaid and all of our secured obligations performed in full, we may not, among other things, without CHFA's prior written consent (which by the terms of the deed of trust is not subject to a reasonableness requirement): create or incur additional indebtedness (other than obligations created or incurred in the ordinary course of business); merge or consolidate with any other entity; or make loans or advances to our officers, shareholders, directors or employees. Documentation relating to the permanent loan may contain negative covenants similar or identical to those associated with the construction loan.

Off Balance Sheet Transactions

We have no off balance sheet transactions and had none in 2007 or in the first three months of 2008.

INDUSTRY

Background

Power is the rate of production or consumption of energy and can be quantified in watts (W). The following increments are used in this prospectus when discussing the power industry and the PV market:

1 kilowatt (kW) = 1,000 W

1 megawatt (MW) = 1,000,000 W

1 gigawatt (GW) = 1,000,000,000 W

1 terawatt (TW) = 1,000,000,000,000 W

Electricity usage generally is expressed in kilowatt-hours (kWh), or the number of kilowatts consumed in an hour. For example, one kWh equals the use of 1 kW for one hour. By way of reference, the average U.S. household is said to consume 10,600 kWh of electricity each year.

Electric Power Industry

According to the EIA, a statistical agency of the U.S. Department of Energy, global demand for electricity is expected to nearly double from approximately 16.6 TWh in 2004 to 30.7 TWh in 2030. Further, the International Energy Agency, an energy policy advisor to 27 countries including France, Germany, Japan, the United Kingdom and the United States, has predicted that governments and industries worldwide will need to invest approximately $20 trillion in energy-supply infrastructure between 2005 and 2030 in order to meet this demand. Although the vast majority of electricity generated today is produced using fossil fuels such as coal, oil and natural gas, the world's supply of these carbon-based fuels is limited. This fact, coupled with rising energy prices, and various environmental and geopolitical security concerns, have led to sustained efforts to increase use of renewable energy sources such as solar, wind, geothermal and tidal power. The U.S. Department of Energy reports that in 2005, approximately 66% of worldwide energy was produced from fossil fuels, 17% from hydroelectric, 15% from nuclear and 2% from geothermal, solar, wind and biomass.

PV Market

PV technology has sparked extensive interest as an alternative source for generating electricity. By converting sunlight into electrical energy, PV installations are able to harness the sun's energy to produce power for regional electrical utility grids, provide power directly to commercial and residential end users and supply electricity to remote regions of the world. According to industry reports, annual shipments of PV modules increased from approximately 500 MW in 2002 to approximately 1,985 MW in 2006, representing an average compound annual growth rate of more than 40%, and it is estimated that approximately 2,580 MW of new capacity were shipped in 2007. Industry reports also suggest that the rapid growth of the sector will continue and indicate that shipments will grow to approximately 22,805 MW in 2015. Based on shipment and average module sales price forecasts contained in industry

reports, the market opportunity for manufacturers of PV modules during the 2008 to 2011 period is estimated to be roughly $75 billion. Industry reports contain the following market estimate and data:

PV Module Market

	Total PV Module Shipments (MW)[1]	Thin-Film Production (MW)[2]	Average Module Sale Price ($/W)[1]
2007(est.)	2,587	476	$ 3.75
2008	3,471	801	$ 3.75
2011	8,187	2,763	$ 3.15
2015	22,805	6,045	$ 2.65

(1) Data from Navigant Consulting, Inc., PV Services Program, "Analysis of Worldwide Markets for Photovoltaic Products and Five-Year Application Forecast 2006/2007."

(2) Data from NanoMarkets, LLC, "Thin-Film, Organic and Printable Photovoltaics Markets: 2007-2015."

We believe that our flexible, lightweight PV modules are particularly well suited for integration into building materials. Industry experts estimate that the market for thin-film PV applications in commercial, industrial and residential buildings was approximately $600 million in 2007, and will grow to over $1.8 billion in 2010. This includes building products such as roofing shingles, siding and facades, metal and composite panels and roofing membranes, thereby adding value to those already-existing products. Our PV technology also can be used in a variety of EIPV applications, whereby PV modules are integrated into portable electronic packages, casings, battery packs and portable power systems.

Challenges Facing the PV Industry

Despite increased interest in PV as an alternative energy source, the PV industry must overcome a number of challenges to achieve widespread acceptance and commercialization of its products, including:

High cost of PV electricity relative to conventional sources. Currently, without the aid of significant government incentives and subsidies, PV electricity is not cost competitive with that generated from conventional fossil fuel sources such as coal, oil and natural gas.

Limited availability of semiconductor materials. PV modules require semiconductor material to convert sunlight into electrical energy. In 2006, well over 90% of the PV modules sold worldwide used c-Si as a semiconductor absorbing layer. However, increasing demand by the PV and electronics industries has placed strains on the supply of silicon feedstock, which may constrain growth of the overall PV market.

Intermittent source of power. PV systems require sunlight to generate electricity and generally are less effective in geographic regions with low levels of sunlight or extreme temperatures. As a result, PV systems generally cannot be relied upon as a sole source of electricity, but instead must be used as a part of, or as a supplement to, a larger electrical power system supplied by other fuel sources.

PV Technology

PV electricity is generated by systems that convert the sun's energy directly into electrical energy. PV cells are the most elementary component of any PV system; they utilize a layer of semiconductor

material to absorb sunlight and convert it into electrical power. Electrical contact points are added to move electricity out of each cell, much like a household battery. A PV module consists of several PV cells connected together before the entire unit is encapsulated to protect against moisture and other undesirable environmental influences. PV modules may then be assembled together to form part of a PV system, which also may include an inverter to convert the direct current electricity from PV cells into alternating current electricity suitable for connection to a utility grid.

The term "conversion efficiency" describes the percentage of energy from absorbed light that a device whether it be a PV cell or a PV module is able to convert into electrical energy. For example, if a PV cell is able to produce 100 W of electricity when exposed to 1,000 W of sunlight energy, then the PV cell has a conversion efficiency of 10%. The PV industry uses a set of reference measurement conditions, called "standard test conditions" or "STC," to evaluate and compare the performance of different PV devices. STC is used to measure a device's peak output power (watts peak or "Wp") and conversion efficiency at a specified standard temperature (*i.e.*, 25 degrees celsius), solar irradiance (*i.e.,* 1 kW/m^2) and illumination. When used in this prospectus in relation to solar capacity, production volume or shipment volume, the term "MW" denotes "MWp," the number of megawatts peak under STC. In real world operations, PV devices installed in the field typically operate outside STC; therefore, when designing and producing a PV product for commercial applications, manufacturers must understand and consider the environmental conditions in which their PV products will operate.

On average, the sun provides approximately 1.0 kW of power to each square meter of the Earth's surface. Consequently, a one square meter PV device operating at STC with a 10% conversion efficiency rating would, in theory, generate approximately 100 Wp, or 0.10 kWp, of direct current power. If the conditions persist for one hour, then the device would generate 0.10 kWh of electricity. We believe that thin-film PV modules in commercial production today are exhibiting average conversion efficiencies of approximately 6% to 10%.

The Costs of PV Power

The cost per watt (expressed in $/Wp) of a PV module equals the cost to produce a PV module divided by the peak power output of that module under STC. The cost to produce a PV module depends on a variety of considerations, including the cost of raw materials, the complexity and cost of the manufacturing process and the volume and speed with which PV modules can be produced. Peak power output is a function of, among other things, the conversion efficiency of the PV module, where conversion efficiency is dictated by factors such the type of semiconductor material used as an absorbing layer and the technology used in the manufacturing process. c-Si PV modules generally have higher conversion efficiencies than thin-film PV modules, but use approximately 100 times more semiconductor material and are more expensive to produce in large volumes.

The "levelized cost of electricity" (LCOE) is the effective price paid by the end customer for PV generated electricity after taking into account all system costs (including module costs and the costs of other components in a complete PV system) and performance characteristics. LCOE is significant because it will help determine when PV-generated electricity achieves grid parity in a given market. In virtually every major market in the world, LCOE of PV still exceeds that of traditional fuel sources. However, industry experts forecast that LCOE of PV solutions will approach grid parity in most major regions in five to seven years. Until that point is reached, and perhaps beyond, growth of the PV market will rely heavily on governmental regulation, subsidies and incentives to make PV-generated electricity cost-competitive. National, regional and local governmental bodies in many countries, most notably Germany, Italy, Spain, France, South Korea, Japan, Canada and the United States, have provided support in the form of feed-in tariffs, rebates, tax write-offs and other incentives to end-users, distributors, system integrators and manufacturers of PV products. For example, Germany provides significant subsidies under the German Renewable Energy Law, or the EEG, to encourage installations

of PV solutions. In the U.S., net metering programs, in which end-users with installed PV systems are able to sell excess PV-generated electricity to their local utility in exchange for a credit against their utility bills, are currently offered in approximately 40 states and the District of Columbia. In an effort to encourage installation of over 3 GW of new PV capacity by 2017, California offers cash-back incentives for new installations and has implemented a pay-for-performance incentive structure to reward high-performance PV projects. Other states have implemented renewable portfolio standards, which typically mandate that a minimum percentage of electricity generated by utilities are derived from renewable sources, including solar. Tax incentive programs also are used at both the federal and state levels to encourage new PV installations. Demand for PV products likely would decline if these governmental programs were reduced or eliminated.

Types of PV Solutions

Historically, the PV market has been dominated by PV modules based on c-Si technology, and c-Si currently accounts for over 90% of the worldwide installed PV base. However, thin-film PV technologies that use a thin layer of a-Si, CdTe or CIGS as the semiconductor material are gaining market share. These thin-film technologies share several technical and economic advantages over traditional c-Si technology because they generally:

require only about 1% of the semiconductor material to achieve the same power output as c-Si, resulting in a fundamental weight and material cost advantage;

use no polysilicon and so have little or no exposure to ongoing silicon feedstock supply shortages and recent silicon price increases; and

enable scalable, lower-cost manufacturing techniques at the module level, reducing the cost and complexity of PV module production.

BUSINESS

Overview

We are a development stage company formed in October 2005 to commercialize flexible PV modules using proprietary technology. Our technology was initially developed at ITN by our founder and core scientific team beginning in 1994 and subsequently assigned and licensed to us. Our proprietary manufacturing process deposits multiple layers of materials, including a thin film of highly efficient CIGS semiconductor material, on a flexible, lightweight, plastic substrate and then laser patterns the layers to create interconnected PV cells, or PV modules, in a process known as monolithic integration. We believe that our technology and manufacturing process provide us with significant advantages over both the c-Si-based PV manufacturers that currently dominate the PV market, as well as other thin-film PV manufacturers that use rigid and/or heavier substrate materials such as glass, stainless steel or other metals.

Because our thin-film PV modules require less than 1% of the semiconductor material to achieve the same power output as a c-Si-based PV device, we do not face the supply constraints and raw material costs that affect silicon-based PV manufacturers. Also, relative to our thin-film competitors, our use of CIGS on a flexible, lightweight, plastic substrate not only allows for integration of our PV modules into a variety of building materials and electronic products, but also should enable a reduction in the cost-per-watt ratios, and increases in the power-to-weight and power-to-area ratios, that our PV modules are able to achieve. These metrics will be critical as we position ourselves to compete in both the high value-added, integrated PV markets and the commodity solar panel market. We also believe that, when employed on a sufficiently large commercial scale, our large-format, roll-to-roll manufacturing process and proprietary monolithic integration techniques will allow us to achieve a per watt manufacturing cost lower than that of our competitors and ultimately to attain grid parity in certain geographic markets within five years. We currently are on schedule to begin limited commercial production of our PV modules in the second quarter of 2008 and plan to expand our rated production capacity to approximately 30 MW by the end of 2009. Thereafter, we intend to expand our rated production capacity incrementally as we install and qualify additional production tools, achieving approximately 60 MW of aggregate rated production capacity by the end of 2010 and approximately 110 MW of aggregate rated production capacity by the end of 2011. We believe that we are the only company focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate.

Our target markets include the BIPV market, in which solar modules are incorporated directly into building and construction materials, the EIPV market, in which solar modules are incorporated directly into portable electronic devices, and the commodity solar panel market. In the BIPV and EIPV markets, we intend to be the supplier of choice by offering high-performance, flexible PV modules that can be integrated directly into products such as roofing shingles, siding and facades, metal and composite panels and roofing membranes in the BIPV market, and electronic packages, casings, battery packs and portable power systems in the EIPV market. In the commodity solar panel market, we intend to leverage our low-cost manufacturing process to compete primarily on the basis of price.

Our marketing and distribution strategy is based on the formation of strategic relationships with key partners, including OEMs, system integrators and distributors, who deal directly with end-users in our target markets. In 2007, we entered into a strategic relationship with Norsk Hydro. Norsk Hydro is a major global supplier of aluminum-based building systems, and pursuant to our relationship, we intend to integrate our flexible PV modules into building products produced and sold by Norsk Hydro, including sun-shading systems, wall systems and facades. Also, in February 2008, we announced the mutual pursuit of a series of strategic relationships with ITOCHU pursuant to which ITOCHU would, among other things, manage our OEM relationships in Japan and support distribution of our PV modules into markets in which ITOCHU is pursuing solar installations. In March and April 2008, we entered into cooperative development agreements with certain North American and European

companies, including ICP and Icopal, pursuant to which these companies are expected to develop, test and integrate our PV modules into their BIPV or EIPV products. We currently are in discussions with a number of other market participants to establish similar non-exclusive relationships in a variety of geographic markets worldwide.

While focused on speed to market, we believe that quality and consistency of product will be paramount to our success in the marketplace. Consequently, our path to commercialization is defined by a highly disciplined, staged progression based upon the achievement of key milestones and supported by over thirteen years of concerted research and development activity by our scientists. In keeping with this philosophy, we completed construction of a 1.5 MW production line in December 2007 after having consistently achieved PV cell conversion efficiencies of approximately 10% to 12%, and PV module conversion efficiencies of approximately 6% to 8%, and as high as 9.6%, in a pre-production prototyping and test facility that we have operated since the fourth quarter of 2006. Over time and with further refinement of our existing processes, we believe that our PV modules should be able to achieve efficiencies of 10% to 12%, significantly greater than the 6% conversion efficiency threshold that we believe is necessary for our products to be commercially acceptable in the current marketplace. The 1.5 MW production line incorporates into an integrated process each of the discrete manufacturing steps that have been previously tested in our pre-production prototyping and test facility. In March 2008, we achieved IOC of our 1.5 MW production line as an end-to-end integrated process. Early IOC production trials resulted in average thin-film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of up to approximately 7.1%. We intend to commence limited commercial production on our 1.5 MW production line during the second quarter of 2008 with an emphasis on module testing and further optimization of production efficiencies and yield, and we expect to obtain independent certifications of our PV modules from certain government or regulatory organizations, such as UL, IEC and TÜV, by the second quarter of 2009 after we have demonstrated desired production yields, module efficiencies and other targets on a repeatable basis. We expect to manufacture approximately 2 MW of product on this production line between mid-2008 and the end of 2009 while concurrently working with Norsk Hydro, ITOCHU, ICP, Icopal and other strategic partners to qualify products for sale to end-users. Our manufacturing expansion plan entails the design, installation, qualification, testing and operation of additional production tools to increase our rated production capacity. We plan to expand our rated production capacity to approximately 30 MW by the end of 2009, and thereafter we intend to expand our rated production capacity incrementally as we install and qualify additional production tools, achieving approximately 60 MW of aggregate rated production capacity by the end of 2010 and approximately 110 MW of aggregate rated production capacity by the end of 2011. However, the actual production levels that we are able to realize at any point during our planned expansion will depend on a variety factors, including our ability to optimize our production process to achieve targeted production yields and module efficiencies.

Projected Commercialization Timeline

We intend to be the first company to manufacture large, roll-format, PV modules in commercial quantities that use CIGS on a flexible, plastic substrate. Our manufacturing expansion plan entails the design, installation, qualification, testing and operation of additional production tools to increase our rated production capacity. We intend to incrementally expand our aggregate production capacity to 110 MW by attaining the following milestones within the time frames indicated:

Second quarter of 2008: commence limited commercial production on 1.5 MW production line.

Second and third quarters of 2008: begin procuring production tools for the first 30 MW of incremental rated capacity.

Third and fourth quarters of 2008: begin certification and qualification of products through UL, IEC and TÜV.

Second quarter of 2009: complete certification of products from 1.5 MW production line.

Third quarter of 2009: begin procuring production tools for the second 30 MW of incremental rated capacity.

Fourth quarter of 2009: complete qualification of production tools for the first 30 MW of incremental rated capacity and commence production at 30 MW of aggregate rated capacity.

Third quarter of 2010: begin procuring production tools for the final 50 MW of incremental rated capacity.

Fourth quarter of 2010: complete qualification of production tools for the second 30 MW of incremental rated capacity and commence production at 60 MW of aggregate rated capacity.

Fourth quarter of 2011: complete qualification of production tools for the final 50 MW of incremental rated capacity and commence production at 110 MW of aggregate rated capacity.

Although we currently plan to expand our production capacity in accordance with the timeline above, the actual timing and amount of production capacity that we install may significantly deviate from the above plan due to market conditions, availability of financing, timeliness of delivery of production tools, product performance and other factors described in this prospectus.

Advantages of CIGS on a Flexible Plastic Substrate

Thin-film PV solutions differ based on the type of semiconductor material chosen to act as a sunlight absorbing layer, and also on the type of substrate on which the sunlight absorbing layer is affixed. We believe that we are the only company currently focused on commercial scale production of PV modules using CIGS on a flexible, plastic substrate. We utilize CIGS as a semiconductor material because, at the laboratory level, it has a higher demonstrated cell conversion efficiency than a-Si and CdTe. We also believe that CIGS offers other compelling advantages over both a-Si and CdTe, including:

CIGS versus a-Si: Although a-Si, like CIGS, can be deposited on a flexible substrate, its conversion efficiency, which already is generally much lower than that of CIGS, measurably degrades when it is exposed to ultraviolet light, including natural sunlight. To mitigate such degradation, manufacturers of a-Si solar cells are required to implement measures that add cost and complexity to their manufacturing processes.

CIGS versus CdTe: Although CdTe modules have achieved conversion efficiencies that are generally comparable to CIGS in production, we believe that CdTe has never been successfully applied to a flexible substrate on a commercial scale. We believe that the use of CdTe on a rigid, transparent substrate, such as glass, makes CdTe unsuitable for a number of the applications that we are targeting in the BIPV and EIPV markets.

Our choice of substrate material further differentiates us from other thin-film PV manufacturers. We believe that the use of a flexible, lightweight substrate provides clear advantages in the higher value-added BIPV and EIPV markets, where rigid substrates are unsuitable for many applications. We also believe that our use of a flexible, plastic substrate provides us significant cost advantages because it enables us to employ monolithic integration techniques that we believe are unavailable to manufacturers who use flexible, metal substrates. Accordingly, we are able to eliminate the need for costly back-end assembly of inter-cell connections. As the only company, to our knowledge, focused on the commercial production of PV modules using CIGS on a flexible, plastic substrate, we believe we have the opportunity both to penetrate the BIPV and EIPV markets with a high quality, value-added product and also to compete in the commodity solar panel market as a low-cost producer.

Competitive Strengths

We believe we possess a number of competitive strengths that provide us with an advantage over our competitors.

We are an early mover in CIGS technology with a proprietary, flexible, lightweight PV product that positions us to penetrate a wide range of attractive high value-added markets. By applying CIGS to a flexible, plastic substrate, we have developed a PV module that is efficient, lightweight and malleable, providing unique opportunities for integration into building material products (such as roofing shingles, siding and facades, metal and composite panels and roofing membranes) and electronic components (such as electronic packages, casings, battery packs and portable power systems). Relative to our competitors, we believe that our early mover advantage in CIGS technology has placed us on an accelerated path to commercialization with a superior product offering.

We have the ability to manufacture PV modules for different markets and for customized applications without altering our production processes. Our ability to produce PV modules in customized shapes and sizes, or in a variety of shapes and sizes simultaneously, without interrupting our production flow provides us with flexibility in determining target markets and product applications, and allows us to respond quickly to changing market conditions. Many of our competitors are limited by their technology and/or their manufacturing processes to a more restricted set of product opportunities.

Our integrated, roll-to-roll manufacturing process and proprietary monolithic integration techniques provide us a cost advantage over our competitors. Historically, manufacturers have formed PV modules by manufacturing individual solar cells and then interconnecting them. Our large-format, roll-to-roll manufacturing process allows for integrated production. In addition, our proprietary monolithic integration techniques allow us to utilize laser patterning to create interconnects, thereby creating PV modules at the same time we create PV cells. In so doing, we are able to eliminate an entire back-end processing step, saving time as well as labor and manufacturing costs relative to our competitors.

Our strategic relationship with Norsk Hydro provides us with direct access to a large customer base in the global BIPV market. Norsk Hydro is a major global supplier of aluminum-based building systems, and our relationship provides us with a strong, established development and marketing partner for accessing the BIPV market in an accelerated manner. Together with Norsk Hydro, we are in the process of developing a product line that would incorporate our PV modules into various Norsk Hydro products such as sun-shading systems, wall systems and facades.

Our proven research and development capabilities position us to continue the development of next-generation PV modules and technologies. Our ability to produce CIGS-based PV modules on a flexible plastic substrate is the result of a concerted research and development effort that began more than thirteen years ago. We continue to pursue research and development in an effort to drive efficiency improvements in our current PV modules and to work toward next-generation technologies and additional applications.

Markets and Marketing Strategy

Our target markets include the BIPV market, in which solar modules are incorporated directly into building and construction materials, the EIPV market, in which solar modules are incorporated directly into portable electronic devices, and the commodity solar panel market. In the BIPV and EIPV markets, we intend to be the supplier of choice by offering high-performance, flexible PV modules that can be integrated directly into products such as roofing shingles, siding and facades, metal and composite panels and roofing membranes in the BIPV market, and electronic packages, casings, battery

packs and portable power systems in the EIPV market. In the commodity solar panel market, we intend to leverage our low-cost manufacturing process to compete primarily on the basis of price.

Our marketing and distribution strategy is based on the formation of strategic relationships with key partners, including OEMs, system integrators and distributors, who deal directly with end-users in our target markets. In 2007, we entered into a strategic relationship with Norsk Hydro, a major global supplier of aluminum-based building systems. Pursuant to that relationship, we are cooperating with Norsk Hydro to integrate our flexible PV modules into building products produced and sold by Norsk Hydro, including sun-shading systems, wall systems and facades. The first of these products is expected to be a line of BIPV louvered sun shading systems that will be marketed under the brand name "Brise Soleil." Norsk Hydro showcased the Brise Soleil product concept at the BATIMAT building exposition in Paris, France in November 2007. We expect product prototyping to continue through the second quarter of 2008 while our PV products are tested and certified. Also, in February 2008, we announced the mutual pursuit of a series of strategic relationships with ITOCHU pursuant to which ITOCHU would, among other things, manage our OEM relationships in Japan and support distribution of our PV modules into markets in which ITOCHU is pursuing solar installations. In March and April 2008, we entered into cooperative development agreements with certain North American and European companies, including ICP, Icopal and Giscosa Sociedad Limitada, pursuant to which these companies are expected to develop, test and integrate our PV modules into their BIPV or EIPV products. We currently are in discussions with a number of other market participants to establish similar non-exclusive relationships in a variety of geographic markets worldwide.

Until we commence production at approximately 30 MW of rated production capacity, which we currently expect will occur by the end of 2009, we intend to supply our strategic partners with PV module samples produced on our 1.5 MW production line to support our partners' development, testing and certification of new integrated products, which also should enable them to identify and cultivate promising market segments. By cooperating with our strategic partners in this way, we hope to create sufficient and consistent demand for our PV modules by the time we commence large scale commercial production of our PV modules using our planned production tools for approximately 30 MW of rated capacity. We also intend to initiate sales of PV modules to these partners from our 1.5 MW production line. With the exception of our planned "commodity modules" (described below), which we expect to sell through various distributors, we envision that we ultimately will serve as a provider of high value-added components to our strategic partners, who will be solely responsible for the marketing, sales and distribution of their integrated building and electronics products. In so doing, we intend to position ourselves as the leading manufacturer and supplier of value-added PV components to the BIPV and EIPV markets.

Based upon industry reports, we believe that the overwhelming majority of manufacturers in the commodity solar panel market are makers of rigid and relatively heavy glass-encased modules of fixed sizes and power ratings. In this type of commodity market, we believe that cost is one of the main competitive discriminators. We therefore intend to leverage our low-cost manufacturing process to compete primarily on the basis of price, and to develop our own line of standard "commodity modules." Also, by capitalizing on the lightweight features our PV products, we believe that we can reduce overall system installation costs, making our commodity modules more attractive to both installers and end-users.

Although the BIPV, EIPV and the commodity solar panel markets comprise our immediate target markets, in the longer term, we also intend to pursue opportunities in the space satellite and near-space markets. We expect the space satellite and the near-space markets to evolve more gradually than the terrestrial market principally due to the higher degree of product qualifications and flight testing that will be required. We anticipate that our pathway to the space and near-space markets will be through development of small mini-modules for experimental space qualification tests and then actual flight experiments with government customers, followed by full scale flight arrays on operational

systems once the technology and arrays have been fully space qualified. We intend to pursue these opportunities in the longer term because we believe that the space and near-space markets place a premium on performance and offer a correspondingly high-value opportunity for our CIGS PV products.

Manufacturing and Manufacturing Strategy

We manufacture our products by affixing a thin CIGS layer to a flexible, plastic substrate, and by using proprietary monolithic integration techniques that enable us to form complete PV modules without engaging in costly back-end assembly of inter-cell connections. Historically, PV manufacturers made PV modules by bonding or soldering discrete PV cells together. This manufacturing step typically increased manufacturing costs and at times proved detrimental to the overall yield and reliability of the finished product. By eliminating this added step using our proprietary monolithic integration techniques, we believe that we can achieve cost savings in, and increase the reliability of, our PV modules. We also use a large-format, roll-to-roll manufacturing process that permits us to fabricate our flexible PV modules in an integrated sequential operation.

The following diagram is a general illustration of our manufacturing process:

While focused on speed to market, we believe that quality and consistency of product will be paramount to our success in the marketplace. Consequently, our path to commercialization is defined by a highly disciplined, staged progression based upon the achievement of key milestones and supported by over thirteen years of concerted research and development activity by our scientists. In keeping with this philosophy, we completed construction of a 1.5 MW production line in December 2007 after having consistently achieved PV cell conversion efficiencies of approximately 10% to 12%, and PV module conversion efficiencies of approximately 6% to 8%, and as high as 9.6%, in a pre-production prototyping and test facility that we have operated since the fourth quarter of 2006. Over time and with further refinement of our existing processes, we believe that our PV modules should be able to achieve efficiencies of 10% to 12%, significantly greater than the 6% conversion efficiency threshold that we believe is necessary for our products to be commercially acceptable in the current marketplace.

The major modifications to our building and facilities in Littleton, Colorado to accommodate the new 1.5 MW production line were completed, and all the requisite production tools and support

equipment were delivered and installed, by the fourth quarter of 2007. During the first quarter of 2008, we qualified production tools for the following manufacturing processes:

Manufacturing Process	Manufacturing Tool
Thin-film vacuum coating of molybdenum back contact	Roll-to-roll tool for sputtering
Thin-film vacuum coating of copper, indium, gallium, selenium	Roll-to-roll tool for thermal evaporation
Chemical spray coating of deionized water and cadmium sulfide	Roll-to-roll tool for chemical treatment
Thin-film vacuum coating of transparent conductive oxide (TCO)	Roll-to-roll tool for sputtering
Laser patterning and ink printing of modules	Roll-to-roll monolithic integration tool

In March 2008, we achieved IOC of our 1.5 MW production line as an end-to-end integrated process. Early IOC production trials resulted in average thin-film device efficiencies of 9.5% and small area monolithically integrated module efficiencies of up to approximately 7.1%. We intend to commence limited commercial production on our 1.5 MW production line during the second quarter of 2008 with an emphasis on module testing and further optimization of production efficiencies and yield. We also expect to obtain independent certifications of our PV modules from certain government or regulatory organizations, such as UL, IEC and TÜV, by the second quarter of 2009 after we have demonstrated desired production yields, module efficiencies and other targets on a repeatable basis. We expect to manufacture a total of approximately 2 MW of product on this production line between mid-2008 and the end of 2009 while concurrently working with Norsk Hydro, ITOCHU and other strategic partners to qualify products for sale to end-users.

Using our 1.5 MW production line as a model, we have commenced engineering and development of our planned production tools for approximately 30 MW of incremental rated capacity. In order to add approximately 30 MW of rated capacity by the end of 2009, we intend to purchase and install production tools that will process one-third meter wide plastic rolls identical to those used in our existing 1.5 MW production line. We expect that the production tools used for the next approximately 80 MW of rated capacity and for future expansions will be engineered to process larger one meter wide rolls, and we have initiated engineering and development of production tools to support our planned expansion to approximately 110 MW of rated capacity by the end of 2011. Successfully transitioning to one meter wide rolls should significantly increase our throughput, thereby reducing the number of manufacturing tools and, hence, the amount of capital expenditures required for the equipment and facilities. Generally speaking, we believe that all other process variables, such as speed, thickness and composition, should remain unchanged. Based upon discussions with our equipment suppliers, we have identified deposition of the CIGS layer in the one meter wide format as the most challenging aspect of transitioning to one meter wide rolls; consequently, we have initiated the development of a one meter wide prototype CIGS production tool to enable us to begin evaluating and testing one meter wide area deposition sources and process control systems. This prototype production tool is scheduled for delivery in the third quarter of 2008, which under our current schedule allows for nine months of testing and evaluation prior to committing the capital in 2009 to procure the one meter format production tools to support further expansion to approximately 110 MW of rated capacity.

We currently expect the capital expenditures needed to support the first 30 MW of rated capacity to be approximately $80 million to $85 million for property, plant and equipment and approximately $8 million for installation, qualification and other associated pre-operating expenses. We intend to finance these expenditures with the net proceeds from this offering and the proceeds we received from Norsk Hydro in March 2008 from its exercise of an option to purchase shares of our common stock and Class B warrants. In order to install the next 80 MW of rated capacity, we expect that we will require another approximately $170 million to $180 million for property, plant and equipment and approximately $15 million for installation, qualification and other associated pre-operating expenses.

See "Risk Factors The net proceeds from this offering may be insufficient to fund our planned expansion to approximately 30 MW of rated capacity; also, our planned expansion to approximately 110 MW of rated capacity will require additional capital which we may not be able to obtain on favorable terms, if at all, or without dilution to our stockholders." Assuming optimized run rate production yields and module efficiencies, we expect our PV module manufacturing cash costs to be approximately $1.00 per watt when operating at 30 MW of rated capacity and approximately $0.90 per watt when operating at 110 MW of rated capacity.

We intend to continue refinement of our manufacturing process in order to enhance parameters such as throughput, efficiency and yield. We also intend to identify and evaluate suitable locations for new production lines, domestically and abroad, that we believe will best serve our target markets and customers.

Competition

Today the market for PV products is dominated by large silicon cell and silicon module manufacturers. The largest silicon-based manufacturers include Motech Industries, Inc. (Taiwan), Q-cells (Germany), Sanyo Electric Co. Ltd. (Japan), Sharp (Japan) and Suntech Power Holdings Co., Ltd. (China). In all, there are over 20 manufacturers with annual production capacities in excess of 25 MW. We anticipate that while these leaders may continue to dominate the market with their silicon-based products for several years, thin-film manufacturers will begin to capture an increasingly larger share of the market.

The thin-film component of the industry is largely made up of a broad mix of technology platforms at various stages of development, and consists of a large and growing number of medium- and small-sized companies. Two of the largest thin-film PV manufacturers are First Solar, Inc. (USA) and United Solar Ovonic LLC (USA), each of whom has reported an installed capacity of 100 MW or greater. First Solar manufactures PV modules by depositing CdTe onto rigid glass plates and uses monolithic integration techniques similar to ours in order to create modules. Relative to our lightweight, flexible plastic substrates, PV modules using glass substrates are rigid and heavy. First Solar therefore primarily serves the commodity markets for PV modules that include large scale, grid-connected solar power projects. United Solar Ovonic manufactures thin-film a-Si cells on flexible metal foil and then individually assembles the cells together into modules; we believe that the module integration technique used by United Solar Ovonic is similar to the way c-Si cells are individually assembled together in series and parallel to form an integrated module, adding weight and cost to the assembly. Competitors currently developing or selling CIGS-based PV modules include AVANCIS GmbH & Co. KG, Global Solar Energy, Inc., HelioVolt Corporation, Honda Soltec Co. Ltd., MiaSolé, NanoSolar, Inc., SoloPower, Inc. and Würth Solar GmbH & Co. We believe that a number of manufacturers that traditionally have manufactured and sold c-Si-based modules have entered, or in the future may enter, the market for thin-film PV modules and, potentially, CIGS-based PV modules.

Research and Development and Intellectual Property

Our core group of scientists has worked together since 1993 in the research and development of CIGS and related PV technologies. We intend to continue to invest in research and development in order to identify next-generation technologies relevant to both our existing and potential new markets. For example, we are pursuing multi-junction CIGS designs that we believe, if successfully deployed, would significantly increase the conversion efficiencies of our existing PV modules. We also are engaged in research and development activities related to longer term opportunities in the evolving space satellite and near-space markets.

Our technology was initially developed at ITN by our founder and core scientific team beginning in 1994. In early 2006, ITN assigned to us its CIGS PV-specific technologies, and granted to us a perpetual, exclusive, royalty-free, worldwide license to use certain of ITN's existing and future

proprietary process and control technologies that, although non-specific to CIGS PV, we believe will be useful in our production of PV modules for our target markets.

We protect our intellectual property through a combination of trade secrets and patent protections. We own the following patents and published patent applications:

"Apparatus and Method of Production of Thin-Film Photovoltaic Module" (U.S. Patent No. 7,271,333) (issued September 18, 2007)

"Flexible High Voltage Photovoltaic Array With Integrated Wiring and Control Circuitry, and Associated Methods" (U.S. Provisional App. No. 60/853,609) (filed October 23, 2006)

"Flexible High-Voltage Adaptable Current Photovoltaic Modules, and Associated Methods" (U.S. Provisional App. No. 60/853,610) (filed October 23, 2006)

In early April 2006, we entered into a non-exclusive patent license agreement with Midwest Research Institute (MRI). MRI manages and serves as operating contractor for the National Renewable Energy Laboratory (NREL) under a prime contract with the U.S. Department of Energy. Pursuant to the prime contract, MRI acquired the rights to license certain inventions developed at NREL. We have acquired a world-wide, non-exclusive commercial license to the following U.S. patents and their foreign counterparts: U.S. Patent Nos. 5,356,839, 5,441,897 and 5,436,204; European Patent No. EP0694209 and European patent application serial no. 95929367.1 (for the European Union, Belgium, France, United Kingdom, Germany and Netherlands); and Japanese Patent Nos. 3130943 and 3258667 and Japanese patent application serial no. 8-508088. The license is effective so long as any claim of the licensed inventions is enforceable. We also have obtained a non-exclusive license from the University of Delaware's Institute of Energy Conversion for U.S. Patent Nos. 6,310,281, 6,372,538, 6,537,845 and 6,562,405, as well as U.S. patent application serial No. 60/620,352. These patents and patent applications relate to the fabrication of CIGS on flexible plastic substrates, the use of laser patterning and thin-film deposition during the fabrication of flexible monolithically-integrated CIGS PV devices and certain process steps that we may use during the manufacturing process.

SBIR Research and Development Contracts

We pursue and perform research and development with U.S. government agencies pursuant to the federal governmen